The OIL WEEKLY

BRAKES for a break-thru to Victory!

Allied tanks wheel into battle, striking to the right and left, pivoting to forestall sudden flanking threats.

This maneuverability is obtained thru a braking mechanism which pivots the tank on its own tracks—and here again Hughes Tool Company is helping to speed production for a quick and overwhelming "break-thru" to Victory.

Finely finished brake drums and other parts for these assemblies are being turned out on Hughes production lines—production lines developed thru years of experience in manufacturing highest quality tools for the essential oil well drilling industry.

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Senior Organization in Men and Management for

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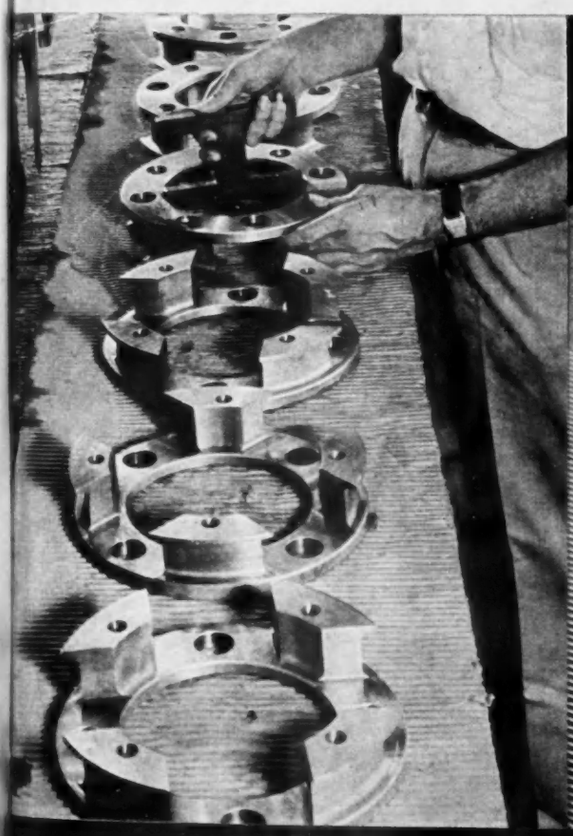

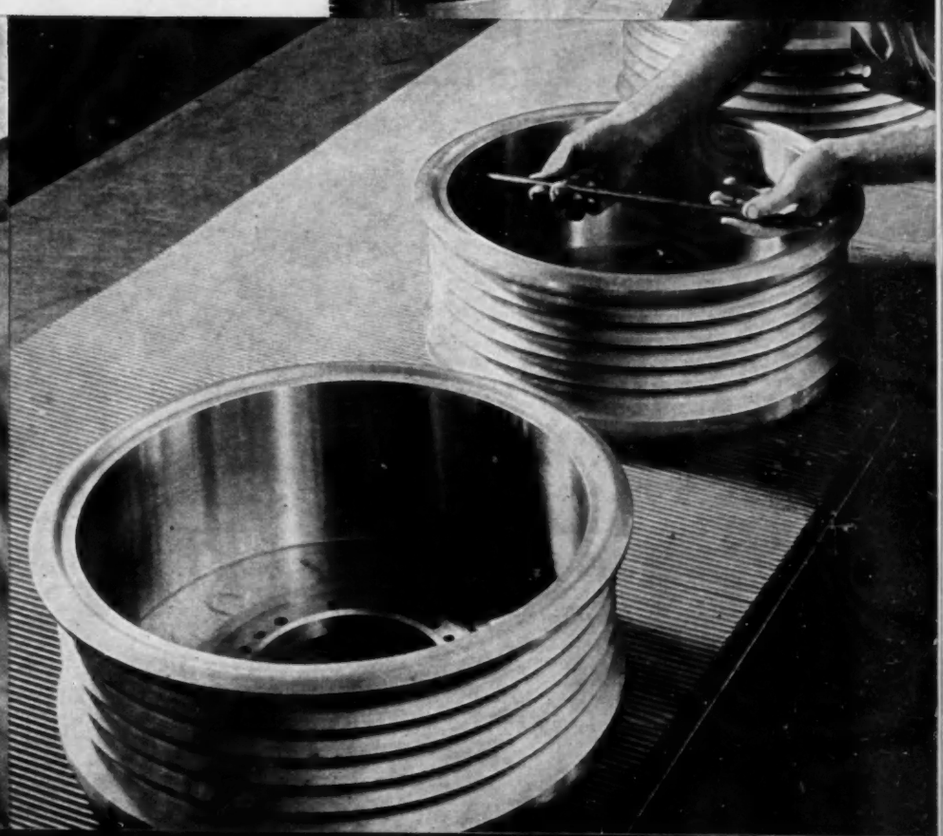

U. S. Navy Off. Photo

A MATTER OF COURSE

AS the navigator sets his sights, so does the Oil Man size up a drilling job and check each step to be sure he is on the right course. When it comes to cementing, the course is clear. For Lone Star Cement Corporation offers four cements to meet each individual drilling problem.

'INCOR'* for wells of moderate depth . . . earlier drill-out . . . wells on production quicker.

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LONE STAR CEMENT for all-around oil-field service.

Four great cements, each with its own specific uses . . . with inbuilt extra quality that is insurance for your oil-well investment. It's just a matter of asking our nearest Dealer for the cement that fits your job. And remember our Field Service . . . we'd appreciate the chance to pitch in and help.

*Reg. U. S. Pat. Off.

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Specialized Oil Publications

THE GULF PUBLISHING COMPANY

The OIL WEEKLY and The COMPOSITE CATALOG for the drilling-producing-pipeline industry

PETROLEUM REFINER and The REFINERY CATALOG for the refining-natural gasoline industry

LOOKING AHEAD

. . . with the Editor

MAINTENANCE of the oil industry's automotive equipment, its service life being drawn out to ever increasing length by added demand and the inability of the companies to obtain quantity replacement of worn-out units, places increasing emphasis on proper methods of reconditioning. To the augmented volume of repair work through extended service must also be added the obstacle to proper repair service from closing of many of the smaller oil-field machine shops.

The company repairman, formerly concerned only with valve grinding, bearing replacement and the occasional substitution of a reconditioned power plant for an old one, now faces precision work with — in most cases — no more tools and equipment than he formerly had.

One of the repair jobs formerly handled largely by specialized service shops and now a company responsibility is the changing of ring gears and pinions in the rear-axle unit. Unless properly handled throughout, expensive and hard-to-get replacement parts will give but a small fraction of expected service. How to perform this workover job and protect the investment in vehicle and new parts is outlined, with instructive illustrations, in an article to appear in an early issue.

THE OIL WEEKLY

ENGINEERING • NEWS • STATISTICS

Published by THE GULF PUBLISHING COMPANY, Houston, Texas

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Published Every Monday. Single Copies 15 cents (Except Special Issues). Subscription price: domestic and foreign, $2.00 a year; 2 years $3.00. Advertising rates on application.

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"BROTHER, THAT HOLE ISN'T THERE JUST FOR DECORATION!"

FIELD STUDIES in scores of plants have shown an urgent need for a more thorough understanding of the Single Cutter Bar Turner. For example, we found operators—experienced operators—having difficulty in positioning cutters of varying thickness in the cutter slot. The remedy is simple—a hollow set screw wrench used through the hole in the front of the block permits easy adjustment of a screw for backing up the cutter.

KNOW THE FULL POSSIBILITIES OF THIS BASIC TOOL IN BAR TURNING

THE Warner & Swasey Single Cutter Bar Turner is used more than any other tool in turret lathe setup for bar work. It is designed and built to hold close limits and deliver fine finishes under fast production. When undersized or oversized diameters occur or "barber-pole" finishes appear, invariably they can be corrected by an operator who knows how to adjust and use the tool.

To give operators a thorough knowledge of a tool they use most often and to provide definite helpful hints that will result in better bar performance, we have compiled a 32-page booklet, full of illustrations and diagrams. It will be sent on request.

New Single Cutter Bar Turner Manual Points Many Ways to Increased Production

WARNER & SWASEY
Turret Lathes
Cleveland

TO GET YOUR COPY, MAIL COUPON **NOW**

Warner & Swasey Operator's Service Bureau, Cleveland, Ohio
Please send booklet, "Better Performance from Single Cutter Bar Turners".

Name _____

Address _____

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I work at (Company) _____

OW-12

YOU CAN TURN IT BETTER, FASTER, FOR LESS . . . WITH A WARNER & SWASEY

The Changing Panorama

Will Redistribute Tubular Goods

A CONSIDERABLE redistribution of critical materials among petroleum operators is likely to result from PAW's new order known as Materials Redistribution Program No. 2 (see Washington Roundup this issue). Included in the list of materials affected is tubular goods, line pipe, wire rope, sucker rods, certain valves, compressors, electric motors, engines, pumping units and tanks. Tubular goods are expected to be more affected by the order than other items.

The high point of the order is the provision that no operator is to have a tubular goods or sucker rod inventory exceeding his needs for the succeeding 90 days. Those that have more casing, drill pipe, tubing or sucker rods on hand than they will use during the next 90 days are expected to sell, loan or transfer them to other operators. This is expected to unfreeze a considerable quantity of tubular goods, and while the order makes these supplies available to both large and small operators in need of the material, it is expected to be of the most benefit to small concerns.

Uniform procedures for reporting, selling or exchanging surplus materials are established.

The purpose of the order is to prevent a few concerns having surplus quantities of critical materials on hand while operations of others suffer for want of these items.

Nation's Life Line Finished on Time

OIL will be flowing in a constant underground stream from Texas to the Atlantic seaboard by August 1. The War Emergency 24-inch pipe line at this moment is in the final stages of completion, though its full 300,000 barrels-per-day capacity will not be reached for some time as equipment for the seven pump stations has not been delivered.

This 1388-mile pipe line has come to be affectionately known as the "big inch" because it is the biggest oil line ever built both as to size and capacity. However, it would be no misnomer to call it the "nation's life line," for its 90,000,000 barrels per month will constitute a vital "blood" stream for the country's fighting forces and war plants.

The construction of this gigantic underground transportation system has been an enormous job, made more difficult by scarcity of materials, shortage of manpower and because no similar undertaking approaching it in size has ever been accomplished before. Yet it has been built in record-breaking time. The first joint of pipe was laid on August 2, 1942.

Again the oil industry has delivered, and again it has delivered on time!

Most Tank Cars in East Coast Service

THE extent to which tank cars of the country have been commandeered to meet the critical fuel requirements of the East are shown by latest figures on number of these cars used in that service.

There are now 73,862 tank cars hauling petroleum into the Atlantic Coast area. In addition, there are 6000 used in distribution within that region. This makes a total of 80,000 tank cars in Eastern service out of a total of 107,000 that are in petroleum service throughout the United States, according to PAW.

This means that 75 percent of all oil tank cars in the country are serving the Atlantic Seaboard, and in point of capacity the percentage is nearly 80 percent since the larger cars have been placed in Eastern service.

Of the 27,000 tank cars in service outside of the Eastern area, only approximately 2500 are hauling gasoline. These are on military, agricultural and industrial assignments, which are as essential as deliveries to the Eastern Seaboard.

Green Manpower Heavy Drilling Burden

IF West Texas, in its present embryonic state of boom, presents a cross section of the manpower situation over the oil country, we are then facing a most unusual situation. There are repeated stories of fantastic manpower shortages emanating from this territory, such as the driller, who at the ripe old age of 23, has reached his present capacity after 3 years roughnecking, the up and coming young mechanic of 77 years who repairs rig floor units, and 14-year-old welders. The drilling contractor moans that the high operating cost of his green crew (in some cases drilling but 2500 feet in 30 days) will cause him to go bankrupt. All agree it is an unusual situation.

The present West Texas deep drilling program is increasing in volume every day and this difficult work requires the skill of experienced hands. It is this lack of skill that most of the contractors complain of. In many cases, the men are not different in appearance from the old crew, but watching them work reveals their inexperience. Accidents are frequent and efficiency suffers. The armed services and the defense plants have taken their toll of oil country experience. Wages have lagged, but it is now the general opinion that the $0.90 to $1.25 hourly wage, with weekly averages around $65.00 to $75.00, are more than compensative for roughneck ability.

Aside from the "green hands" of the drilling crew, red tape in the maintenance of proper and adequate records by contractors and operators is receiving large shares of complaint. Green manpower, lack of materials, and excessive red tape are heavy burdens.

You Can Be Proud of Your Industry

PLANES, tanks, jeeps and trucks must have gasoline and lubricants. Battleships, carriers, submarines, cargo boats and destroyers have to have fuel oil. Everyone knows that these implements of war are vital to the conduct of the war, and that they would be just so much scrap metal without petroleum. But there are many, many other ways in which our industry is helping the war effort. Some of these seem small in comparison, but nevertheless are highly essential. Some are unusual, even amazing, as you doubtless will agree if you follow THE OIL WEEKLY's weekly illustrated poster depicting the use of petroleum in war (see page 21 this issue).

Every oil man, be he a lease roustabout, file clerk, independent operator or major company executive, can be proud of the part he and his industry is playing in the war.

Will Gas Turbines Be Future Power?

NOW that several gas-turbine installations have shown satisfactory operating efficiencies, developers of these prime movers are forecasting big things for them.

A recent advertisement of a large manufacturing company asserted: "Power plant of the future probably will be built around gas turbines . . . operating at efficiencies equal to or better than diesels, but with the low maintenance and simple lubrication of steam turbines."

Another optimistic forecast has come from Dr. Jerome C. Hunsaker, chairman of the National Advisory Committee on Aeronautics, who is reported as saying: "The gas turbine should eliminate a host of troubles inherent in the conventional engine, including cooling, detonation, volatile fuel, lubrication of hot surfaces, vibration and ignition."

Research on gas turbines began back in 1791, but was not crowned with any degree of success until about 1930 and there have been marked improvements in the past dozen years. Whereas the compressor formerly stole about all the power that the turbine could produce, recent publicity would indicate this is no longer true.

So far most of the gas turbines installed have been used at petroleum refineries to move gases through catalyst cracking units, and all have been of big horsepower. This would be no drawback to their use in locomotives, public utility plants, boats and for other purposes, but would present a problem in adapting them to trucks, buses, tractors, automobiles, and small planes.

The multiblade pinwheels of a gas turbine run on the gaseous products of continuous combustion at low pressures. Fuel can be cheap oil or gas, with a number of those currently in operation running on Bunker C fuel oil.

Poverty of Spirit Means Failure

OF ALL human deficiencies, none is so stifling as lack of faith. This embraces more than religion, for loss of confidence, doubt of natural laws or distrust of the imagination are all mental attitudes that amount to poverty of spirit, which can be more damaging than lack of material things. Confidence will stimulate thinking and endeavor until ingenuity and invention can find a solution for the absence of materials.

Just now, led by the chorus in Washington, an early depletion of United States' oil supply is being shouted in all the keys of pessimism. Statistics are convincing that over a period of several years oil has been consumed in greater quantities that it has been found, and at the moment there is every indication that this will continue for sometime. This is a serious situation in view of the importance of petroleum to military, industrial and civilian life. More serious, however, is the too wide acceptance of this situation as an assurance of disaster.

Since no one can know in any exact or even approximate sense what the discoveries of a year, or even a month in advance may be, the current oil outlook of the United States should be considered as serious, but not as one to which there is no solution or that it marks the beginning of the end. Despite statistics on oil finding during the past four years, there is no proof that this country has exhausted its oil resources. Throughout the industry's history there have been periods when discovery exceeded consumption, followed by periods when consumption exceeded supply. Strangely enough each has been accepted at the time as a calamity.

There may be no more, one more or a dozen oil deposits such as East Texas. Whatever the number, no man can change it. Men of vision, however, may do something about the fact that as yet science has found no instrument or method by which other possible structures like East Texas can be found. If the industry is willing to believe in and follow men of vision, our discovery thinking and prospecting methods may be improved so that means will be found for locating oil reservoirs that may exist in the abundance of favorable geological territory that does not yet produce petroleum.

That the industry has such men of vision working on the problem is indicated by the few examples shown in the article "Whence Cometh Our Future Oil?" on page 22 of this issue.

The current diminishing oil supply should not be accepted with a spirit of defeat. What it amounts to is a challenge. New tools, new thinking, new effort, new research and new development are needed. These will come only from the stimulation that confidence and effort can provide, while poverty of spirit will mean defeat.

Congress Will Forget New Taxes for Summer

CONGRESS will make no effort to cope with the problem of new taxes this summer, but the House Ways and Means Committee will meet September 8 to decide on a date for the opening of public hearings on the question.

In the meantime, the committee has instructed its own and Treasury experts to explore the feasibility of an excess profits tax on individuals, to be applied to persons whose income has shown marked increase during the war period. Under this plan, a person whose prewar income was $2400 a year but now is $4800 would pay a higher rate of tax than another whose income has remained constant at $4800.

The Treasury is seeking an additional $12,000,000,000 in taxes, contending that this will not constitute too heavy a burden in view of the anticipated national income of $150,000,000,000 in 1944, but members of the Ways and Means Committee and many Congressional leaders privately express the view that it will be impossible to raise more than half that amount, and then only by the adoption of a general sales tax, to which President Roosevelt has consistently been opposed.

Tanker Building Now Ahead of Sinkings

A TOTAL of 14 tankers were among the 168 cargo vessels delivered during June by shipyards around the country, it has been disclosed by the United States Maritime Commission in an announcement that during the first half of 1943 a total of 879 ships were produced—more than during the entire year of 1942. The 14 tankers completed included 11 high-speed, large boats and 3 small oil carriers, and campared with 15 tankers completed in May out of a total of 175 boats finished. At the current rate of construction, approximately 175 tankers may be built during 1943.

Tanker construction during the past five months has been higher than losses, but severe losses during the early part of the war still leaves the oil fleet smaller than at the start of the war. However, this difference will be soon made up. Henceforth, a larger portion of the boats completed will be tankers. Contracts signed during April of this year called for 234 oil carriers, or almost half of the ships contracted for during the month.

OIL IS AMMUNITION

MAKE BETTER WOOLENS

Practically unknown to the average person is a special wool treating oil. Used in the manufacture of clothing and blankets, these oils lubricate the fibers during the yarn spinning process and provide the American soldier with the finest uniform in the world.

AVIATION LIFE BLOOD

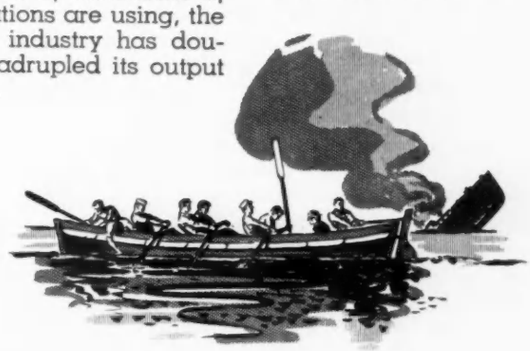
Planes coming off aircraft plant production lines in almost incredible numbers cannot take wing until filled by the oil industry with life blood—aviation gasoline. Planes have an enormous appetite for this fuel, each bomber consumming an average of 200 gallons per hour and each fighter plane half that amount. Each four-motor bomber leaving a British base to bomb Berlin needs 1750 gallons during the few hours it is in the air, which is equivalent to a 8½ year supply for a United States motorist holding a 4-gallon per week "A" ration card for his automobile. To satisfy the needs of the hundreds of thousands of planes the United Nations are using, the American petroleum industry has doubled, tripled and quadrupled its output of aviation gasoline.

LONGER LEATHER LIFE

Were it not for regular applications of petroleum base products made specially for the purpose, the life of such leather equipment as boots, saddles and harnesses would be shortened materially. In addition to keeping the leather soft and pliable, the applications of leather treating and preserving oils serves the dual purpose of waterproofing.

HELP TORPEDOED SEAMEN

Lotions for burns and exposure, made from petroleum, help to relieve the tortures of men forced on the open seas in lifeboats through the sinking of vessels by enemy submarines.



Oceans of Oil Needed

YOUR JOB IS VITAL FOR VICTORY

Poster No. 2—THE OIL WEEKLY

The decline in quantity of oil being found obviously indicates that something is wrong with the industry's discovery effort, but does not necessarily presage that the United States has exhausted its resources to the point it will be impossible to find an adequate supply to fulfill future requirements. Intensified search for deeper producing formations and stratigraphic traps, application of improved recovery methods, reorganization of geological departments, and a change in our discovery thinking are seen by some authorities as offering an abundant supply of oil for some time to come.

Whence

RECENT sharp gains in the rate of producing crude oil in the United States have reduced the nation's surplus producing ability materially, and there are indications that consumption will rise within less than a year to levels that will completely wipe out any surplus capacity to produce. This situation, especially in view of the decline in discovery rates, pushes the question of where the nation is to get its future oil supply further into the foreground of serious affairs that face the industry and the country.

While a prerequisite to any successful discovery program on a national scale is a price which will provide enough incentive to take the necessary risks, of particular concern to the industry is the prospect of finding additional oil under whatever economy that prevails. Dismissing price, materials, manpower and government regulations from consideration, what are the chances of the United States to find oil in sufficiently large quantities to adequately meet future needs?

Obviously something is wrong with the oil discovery rates of the United States. There has been a sharp decline in the quantity of new oil found annually during the past four years. Various surveys have shown that the rate of finding oil has fallen in spite of an increase in wildcat footage and a continuation of a high rate of drilling wildcat wells. New fields that have been found have been smaller in size than those discovered in preceding years, causing many to express fear that the United States will soon enter an era in which it will be unable to produce as much oil as it requires. On the other hand a sizeable number of prominent oil men contend that there is an abundance of petroleum yet to be discovered in the country. If this be true, the question then becomes "How is it to be found?"

A number of prominent geologists and engineers have expressed views on this phase during the past year, and the thoughts and suggestions of some of these are summarized in this article.

Deeper Drilling on Known Structures

Deeper drilling on known structural traps now producing oil is seen by A. R. Denison,[1] chief geologist for Amerada Petroleum Corporation and president of the American Association of Petroleum Geologists, as offering the quickest relief from our alarming decline in daily productive capacity. He urges abandonment of any remaining preconceived ideas of "farewell horizons" and doubts as to lack of source rock or porous horizons, and the adoption of a philosophy of "drill 'em deeper."

Denison demonstrates through examination of a few areas in the Mid-Continent that there is a vertical mile or more of sediments underlying many hundreds of square miles of structural traps. Thus literally hundreds of cubic miles of sediments on our choicest structural features await the drill.

A great many of these structures will require wells of less than 10,000 feet and none over 15,000 feet. Therefore they can be reached with equipment now in use. Prospecting the deeper horizons lying under fields now producing would have many advantages, asserts Denison:

1. There would be no need for geological or geophysical effort, since such work has already been done by the wells drilled thus far. This would save time, money and manpower.

2. Several possibilities for conserving use of materials are offered by such a program. Pipe line facilities are already available, many not being used to capacity because production of the field has declined. In a few areas, especially on the first test, it might be possible to save material by deepening existing wells.

3. Deeper drilling on a known structural feature which is producing would largely eliminate the greatest hazard in wildcat drilling; nine out of ten wildcats failing due to the absence of a suitable trap under the site.

In Denison's opinion no structural trap should be condemned for deeper production until all sedimentary beds above granite or other basement rocks are drilled.

A. I. Levorsen, research director for the American Association of Petroleum Geologists, agrees with Denison that exploration of deeper horizons offers much opportunity for finding additional petroleum supplies. "No sedimentary area," states Levorsen, "can be considered as explored until many test wells have been drilled through all the layers of geology down to the basement rocks. As a matter of fact, every sedimentary region in the United States has unknown and unexplored geology waiting to be drilled. It is probable that there is a volume of undiscovered and therefore unknown and unexplored geology equal to that which is already explored and it is inconceivable that these undiscovered layers will not some day be translated into equally large volumes of oil and gas. The infinite complexity and at the same time the infinite opportunity in petroleum geology of any

Cometh Our Future Oil?

locality becomes apparent when we remember that each layer has its own wedge belts of porosity, its own facies and lithologic changes, its own structural history, and its own oil and gas geology."

Stratigraphic Possibilities

With many believing that most of the nation's more important structural traps have been discovered by past exploration, numerous oil prospectors think that stratigraphic and sedimentary studies hold the key to future new oil supplies of importance.

In addition to layers of geology as a possible future source of new oil fields, Levorsen on several occasions has strongly encouraged the search for stratigraphic traps. "When we remember that some of our largest oil pools —East Texas, Burbank, Glenn Pool, Midway, Sunset, East Coalinga and many, many more are of this type, the opportunities for such prospecting becomes apparent," he has asserted and shows that oil province after oil province is located in close association with the up-dip wedging out of the porosity in the reservoir rock from Pennsylvania to California and from the Ordovician to the Tertiary. Upwards of ten thousand miles of such wedge belts remain to be explored in Levorsen's opinion.

What Levorsen is advocating is a change in our concepts of prospecting methods toward a better understanding of oil finding and producing at textural or rock level rather than on the structural level. This also is the thought of Paul D. Krynine, associate professor of petrology and sedimentation at Pennsylvania State College, who has just made a speaking tour of the country under the auspices of the American Association of Petroleum Geologists. Krynine feels that the industry's methods of attack can be changed more easily than new finding tools can be perfected, and thinks that the practical application of usable sedimentological methods will locate stratigraphic traps at a reasonable cost.

These men think we have been inclined to lean too heavily on mechanical devices to carry on the discovery process, and not enough on coordinated personal observation, individual interpretation and understanding. They urge the preparation and study of facies maps, lithological maps, isopach maps, paleogeographic maps, paleogeologic maps; quantitative and qualitative sedimentation studies, and detailed stratigraphic analyses of every porous sedimentary rock unit in the United States.

As Levorsen has expressed it, this "means a resolving of the great mass of geophysical data into stratigraphy and sedimentology as well as into structural geology. The basis for this work is a re-study, (1) of all surface outcrops, most of which will have to be re-examined from a stratigraphic and sedimentational viewpoint as well as structurally; and (2) a re-study of the detailed subsurface data now in the files and laboratories of the oil industry in the form of well cuttings, cores, electric logs, porosity and permeability measurements, water, oil and gas content, geophysical and geochemical data, and anything which will throw light on the location of a wedge edge of porosity or the crossing of an unconformity into new and unexplored geological conditions."

Economy Framework Out of Tune

It will be noted that Denison, Levorsen and Krynine all are of the opinion that there exists vast quantities of oil in the United States that have not been discovered. With large volumes of favorable formations existing, the declining rate of discovery then indicates something seriously wrong with our prospecting methods.

Besides advocating the need for creative and research geology in place of routine geology, to correct this situation, Levorsen[3] raises the question of whether the industry's economy and operating framework are in proper tune.

Twenty-five years ago, says Levorsen, "The objective of petroleum geologists was to find oil fields. Their full time was devoted to mapping and interpreting geological conditions with discovery as the objective. As time went on . . . the geologist became more interested in the development operations of oil and gas, much of which had been discovered, rather than in the discovery of new fields and new provinces. As a matter of fact, the modern oil company geological organization has become a general service department. It serves the production department continually with geological advice on drilling wells, advice on setting casing, advice on coring prospective sands, advice on well abandonments, and repeated advice as to whether the well is running high or low . . . It serves the executive department with innumerable conferences and a continuous stream of reports, of statistical information, competitive production records . . . It serves the legal department as witnesses and in developing evidence for lawsuits . . . The geologist has in effect buried himself in routine service work.

"All this work is important to an oil company and in order to do it properly and efficiently, an increasing amount of administrative work becomes necessary . . . By his training, his ability to think in terms of earth variables and his understanding of the problems involved, the geologist is particularly well fitted to do all these tasks which have been assigned to him, and all of them are necessary and desirable . . . But, they are not directly concerned with the thing which he can do best and which is of greatest importance to the petro-

leum industry, and that is the discovery of new oil fields."

Levorsen also thinks that the industry's economy framework is not in proper tune. The biggest paying jobs are not in geology, but are for office, administrative and production jobs in which geology merely furnishes the background. "Is it any wonder that he (the geologist) gradually turns his attention and energy to the business of the oil industry and lets geology lag? . . . The fault is not with the individual but with the system which gives so much more tangible recognition to the superficial and leaves the more fundamental factors to chance.

"The correct identification of an unconformity and the correct interpretation of its meaning from well cuttings thousands of feet down in the ground is not an administrative job, it cannot be done by just anyone, and its identification may well be of greater direct importance to discovery than all of the other geological, geophysical and administrative factors together. Yet almost any office job in the department is more desirable, pays better, and is more directly in line for further advancement.

". . . An opportunity must be provided for those men with the capacity and ability for doing creative geology to actually do geology and in addition to be able to spend a part of their time with their feet on a desk looking out the window where they can reconstruct in their mind the condition and the environments of past geologic ages."

Mental Attitude a Factor

In discussing the lack of successful discovery in many of the foreign countries, Wallace Pratt[3] states ". . . The suspicion grows that physical conditions within the earth's crust impose fewer and less formidable obstacles to the development of commercial oil fields over much of the land area of the globe than are raised by our prevailing mental and social climates of opinion. The limitations put upon the discovery of oil on earth today are more mental and social than physical. Gold is where you find it, as the old adage has it, but oil must be sought, first at least in the mind . . ."

In other words, as Levorsen[2] expresses this thought, "We must think discovery if we are to achieve it . . . From a national viewpoint we too often think in too small terms. By far the greatest part of our effort is in searching for extensions to pools already discovered, in searching for deeper sands, and in working and reworking progressively smaller and smaller areas within the developed provinces. We finally get to think almost exclusively in terms of individual oil fields, when we should be thinking in terms of oil provinces; in discoveries of millions of barrels, when we should be thinking in terms of billions of barrels; and in acres of new production when we should be thinking in square miles . . . We must think in terms of 'big' geology so that we may be assured of 'big' results."

Improved Recovery Methods

Get the oil where you know it exists, advocates D. R. Knowlton,[4] director of production for PAW, who declares that aside from exploratory drilling, the most economical and consequently the best source of additional oil lies in the development of improved secondary recovery work. This additional oil source is a challenge to the ingenuity of petroleum engineers.

A quantity of oil of great magnitude has already been discovered but is not producible with current methods. Knowlton points out that a total of 47 billion barrels of oil have been discovered in the United States, of which 27 billion barrels have been produced and the remaining 20 billion barrels constitutes known underground producible reserves. Assuming a recovery factor of 40 percent, then the oil to be left in the ground under presently known fields after primary recovery efforts will be about 70 billion barrels, which is 2½ times the quantity of oil the United States has produced since the first oil well was drilled in 1859.

It is the engineers' problem to get as much of that oil as economically possible. "I don't know how much of it we can get," continues Knowlton, "but some fields with efficient water drive have no possibilities while other gas drive fields will produce as much by secondary means as they did by primary methods. I do know that there are 3 to 4 billion barrels of secondary oil which we can recover at the present or slightly increased price and with present techniques."

". . . What I have said about secondary recovery applies equally to pressure maintenance and to other forms of reservoir control which increase the ultimate recovery from oil fields. Through pressure maintenance and controlled rates of flow we can recover substantial quantities of our so-called secondary oil while producing the primary oil."

That the proper application of secondary recovery methods can contribute an important amount of oil also is the opinion of Paul D. Torrey,[5] consulting geologist and chairman of the American Petroleum Institute's Committee on Secondary Recovery Methods. Torrey points out that secondary recovery operations affected a minimum of 306,282 acres of oil productive territory during 1942, on which there were some 50,630 producing wells and 34,956 injection wells. These comprise some 1236 different projects located in 254 separate fields. He estimates that the United States crude oil reserves could be increased by more than 4 billion barrels if secondary-recovery operations were widely applied in proper form.

Torrey sees low crude oil prices as a retarding factor in secondary recovery work, and views such operations as a conservation measure of great import. Not only can the reserves of the nation be increased materially, large scale savings in critical materials could be achieved, in his opinion. It is frequently possible to utilize existing wells and equipment, and second-hand equipment can be used extensively. Only a minimum amount of new equipment would be required, and this could be of the lowest grade steel because most of the operations would be at shallow depths. It would not be necessary to enlarge or build new pipe line systems, which is the case when new producing fields are discovered.

Conclusion

There is no question but that the situation in regard to the necessity of finding large new petroleum reserves is critical. However, the situation is not as dark as many fear, if the opinions of Levorsen, Denison, Krynine, Knowlton, Torrey, and others, that the United States has not yet exhausted its petroleum resources, are accepted. Admittedly, they offer many strong facts to back up their beliefs, and therefore should be given consideration.

However, if the industry is to discover the large volumes necessary to keep supply in balance with future demand it must reorganize its prospecting efforts. More thorough search for deeper producing horizons, stratigraphic and sedimentary traps, revamping of the industry's administrative, economy and operating framework to give more recognition to the art of discovery, removal of mental hazards and detail work, plus the application of improved recovery methods, may be the answer to this perplexing and highly important question, as suggested by these men.

REFERENCES

[1] A. R. Denison. Address before American Institute of Mining and Metallurgical Engineers, Petroleum Division, Dallas, Texas, May 6-8, 1943.

[2] A. I. Levorsen, "Discovery Thinking," an address before American Association of Petroleum Geologists, Fort Worth, Texas, April 7, 1943. Published, The Oil Weekly, April 12, April 19 and April 26, 1943, issues.

[3] Wallace Pratt, "Mental Attitude Important Oil-Discovery Factor," The Oil Weekly, May 31, 1943.

[4] D. R. Knowlton. Address before American Institute of Mining and Metallurgical Engineers, Petroleum Division, Dallas, Texas, May 6-8, 1943.

[5] Paul D. Torrey, "Significance of Secondary Recovery in the United States," an address before American Association of Petroleum Geologists, Fort Worth, Texas, April 9, 1943. Published, The Oil Weekly, June 21, 1943.

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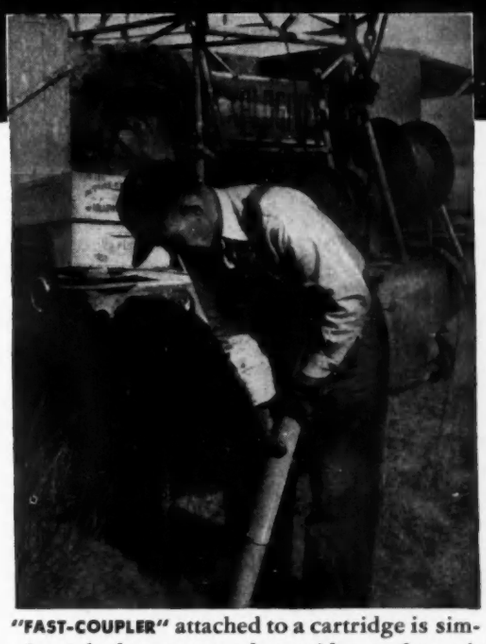

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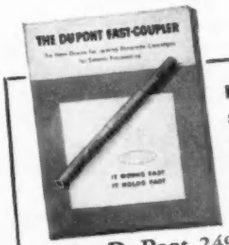

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Bonus Allowables Proposed For Oklahoma Discovery Wells

To provide incentive for wildcatting, especially on part of small operators, Oklahoma studying bonus allowable provision for each discovery well that would be based on depth of well

By FRANK B. TAYLOR, Staff Writer

ALLOWABLES substantially larger than the normally fixed and stabilized allocations that have heretofore followed the opening of new fields in Oklahoma are proposed for each new pool discovery well in the state. Intent of the proposal is to increase the incentive to drill prospects, and thus indirectly add to the state's crude oil reserves and producing ability. This incentive is to be provided for by the immediate return of a substantially greater proportion of the wildcat investment than has been possible with nominal allowables fixed in the past. Previous to the suggested idea successful wildcats in Oklahoma enjoyed no legally recognized discovery benefit, although in actual practice a bonus based upon drilling cost and acreage has been granted pool openers. A hearing on the subject is scheduled for July 27 at Oklahoma City.

Bonus allowables have been a vexing problem to the State Conservation Department for the past few years. To clarify this question, W. T. Pounds, conservation officer, at the suggestion of various operators named a committee to consider the matter and work out some systematic manner of approach. Named on this committee were D. A. Howard, Cities Service Oil Company, Bartlesville; C. O. Moss, Deep Rock Oil Corporation, Tulsa; W. A. Delaney, Jr., Delaney Oil Corporation, Ada; Wm. T. Payne, Big Chief Drilling Company, Oklahoma City; T. L. Regan, Stanolind Oil & Gas Company, Tulsa; Roy M. Johnson, Ardmore; and Dan O. Howard of the Conservation Department, Oklahoma City. These men contacted many operators in the state in order to gain their individual opinions.

As a result of this effort to gain a general cross-section of ideas, and directly from round-table discussion among the members of the committee, a plan was evolved and recommended to the commission. The plan as submitted is readily operateable, is adaptable to conditions and is considered sufficiently flexible in its tenets to satisfy the variety of structural conditions found in the state. Intended to be offered for positive action at the hearing held July 2, so many suggestions for revising the recommended formula were received that the commission felt it best to postpone the hearing until all state operators had again been contacted for their views.

Precedent has already been established for the granting of discovery bonuses although there was no previous statutory authority. Allowables of this nature had been granted as was deemed expedient at the moment, and were generally based upon the costs and natural productivity involved. Since the report of the committee, which included a suggested formula, two wells have been granted discovery allowables, these being Ray Stephens, Inc.'s Pierson 1, in southwest Cement and Fox and Schmidtz's (was Ace Gutowsky's) Wagner 1, discovery well of West Edmond pool.

It was also felt that since an increase in the price of crude had not been obtainable to act as a spur to exploration, some other stimulant was necessary. In Texas, which has been granting discovery allowables as a result of order No. 20-4356 amending order No. 20-3305, passed January 15 of this year, results were considered sufficiently encouraging as to make a similar plan desirable elsewhere. The application would particularly aid the smaller operator most active in exploration.

In practice, the plan as submitted by the committee allows one discovery well allowable to be granted each separate geologic structure, and this will not be interpreted as being applicable to each new pay formation irrespective of depth, proven productive on the same geologic feature. This limitation of application to a single structure is based on an initial premise of the plan, which was to encourage the finding of new productive fields and areas with the expectation that normal development would open up the more shallow or the deeper pay formation without the aid of an artificial stimulant. The major burden of hazard is felt to be overcome with the completion of the first well on a structure although in the consideration of the recommendations, it was brought out that other wells to other completion depths would incur additional drilling and testing expenses, and that if these efforts were successful in further adding to reserves, then the effort should be rewarded by at least a partial bonus. This bonus could be on a flat percentage basis, or could be on the basis of a difference in elevations of completion depths.

Based on Depth

In contrast to past practice of granting a discovery allowable on the basis of total cost of the test, which included the provision that the bonus oil had to be produced prior to the completion of the second well in the field; a factor which was condemned as contributing toward excessive rates of production in some instances, the recommended procedure allows a minimum of 5000 barrels of discovery oil. The depth factor controls allowables granted in excess of 5000 barrels, which is a minimum bonus regardless of depth, in the following manner:

Depth	Discovery Allowable
0-3000 feet	3.0 Bbls. per ft.
3000-4500 feet	4.5 Bbls. per ft.
4500-6000 feet	6.0 Bbls. per ft.
6000-7500 feet	7.5 Bbls. per ft.
Above 7500 feet	10.0 Bbls. per ft.

The depth used in the calculations is to the top of the producing formation, and is applied in this manner: On a well drilled to 7308 feet, but plugged back and completed in a formation topped at 6321 feet, the basic allowable of 3 barrels per foot applies for the first 3000 feet. For the next 1500 feet, the operator is granted 6750 barrels at a rate of 4.5 barrels per foot. For the next 1500 feet to 6000, the allowable is 9000 barrels, and for the additional 321 feet in excess of 6000 feet the operator is allowed 7.5 barrels for each foot drilled. This, in this case, is equivalent to 2407 barrels. Adding the allowables calculated for the different brackets the operator is entitled to a total discovery allowable of 27,157 barrels.

The discovery allowable granted an operator shall be produced on a daily basis in one year unless this rate would lead to waste. Also, it is not essential that all the allowable be produced from the discovery well as the plan includes a provision for the distribution of the

[*Continued on page 32*]

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Today's Interesting Tools

An Instrument for Inspecting Interior Pipe Wall Conditions

By FRANK BRIGGS, Staff Writer

AN adaptation of the telescope that originally was designed for inspection of gun barrels, now makes it possible to examine the inside walls of tubular goods for defects. Thus, for example, it is now possible to determine how each joint of drill pipe is wearing, thereby continuing much of it for additional service that for safety reasons might have been discarded previously. Or, some of the drill pipe that previously might have been left in service is now junked because of defects revealed by the tubular telescope.

The instrument that performs this valuable service looks like a telescope with a mercury-vapor lamp attached to the end of it. It is sufficiently light to be portable, and can be lengthened, by adding five-foot sections, as much as 25 feet.

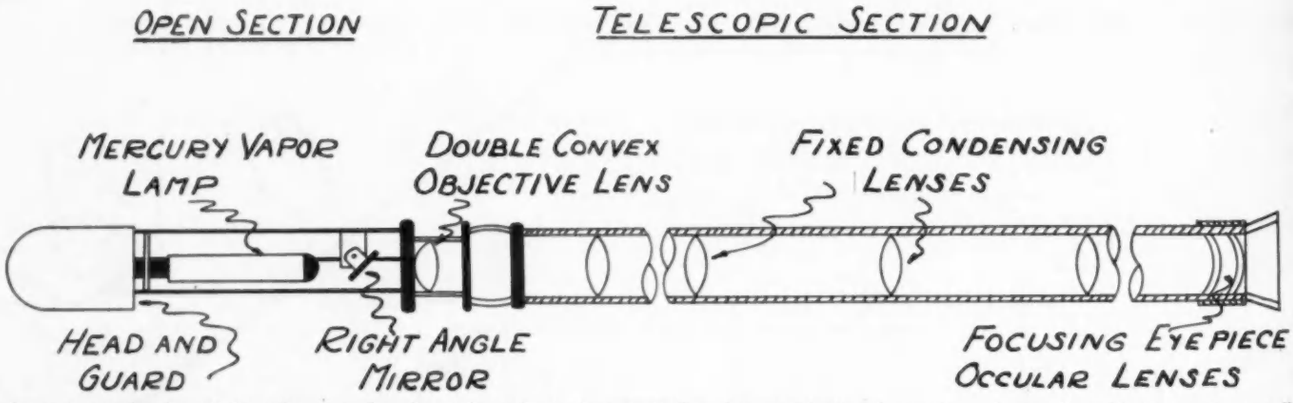
Under present practices, drill pipe is usually not discarded until it has been inspected internally and proven defective. As many of the failures originate in the pipe walls, the preliminary evidences, such as pits, seams or fatigue cracks can be discovered with this telescope. In this manner all drill pipe, casing, tubing, and line pipe can be inspected, classified and assigned to jobs which each joint is capable of performing, thus preventing early failures and difficulties.

The simple construction of a telescope involves primarily two lenses: the objective or end lens that concentrates the light beam and the eye-piece lens which magnifies the image. The instrument for inspecting pipe interiors, familiarly known as the tuboscope, contains both of these lenses, plus intervening lenses that tend to maintain the intensity of the light beam for the length of travel in the telescope tube. These are known as condensing lenses. Sections of tube containing three intermediate lenses each can be added to make the tuboscope any desirable length (up to 25 feet). Just in front of the objective lens is a mercury vapor lamp attached to the instrument; this provides light for a longitudinal view of the pipe walls of about 10 inches. Examination of the entire length of a joint of pipe is accomplished by inserting the lighted end of the instrument into one end for the length of the telescope and then repeating the same at the other end of the pipe. Spring centralizers spaced at adequate intervals, keep the instrument centered in the pipe. Right angle vision of pits and other pipe-wall defects can be obtained by means of a highly polished mirror of stainless steel attached to the instrument between the viewing light and the objective lens and set at an angle of 45 degrees to horizontal.

Preceding all examinations, the pipe walls are cleaned thoroughly with rotary wire brushes driven by air pressure. This air also blows the loose particles from the pipe. After cleaning, the instrument is pushed slowly through the pipe as an inspector examines the inner walls. If a pit or scar or lap weld is found, the operator turns the instrument over until he gets the desired object located in the angle mirror. This permits a vertical view of the affected part, thus giving the operator a closer, more accurate picture. Should measurements be desired, a small pit-depth gauge can be attached to the instrument.

In order to thoroughly determine the pipe possibilities, external gauging is also made to locate worn zones. A standard "no-go" gauge, set just a fraction less than the outside diameter of the pipe, and looking like a horse-shoe, is run over the length of the pipe twice—once at right angles to each other. Worn spots mean less wall thickness and resulting concentration of stresses that cause early fatigue of the material.

Suppose the operator is pulling casing. The first cut fails to free the pipe; the second run and cut with the tools is also a failure. On the third try, the casing is cut free and pulled, disjointed and racked. Now the engineer asks the pusher which joints were damaged by



Approximate drawing of the tuboscope. Five foot telescopic sections, including three condensing lenses in each, can be added to make overall length of instrument as much as 25 feet.

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The Reed *Super Shrink-Grip* Tool Joint retains all of the safety advantages of the Reed Shrink-Grip Tool Joint, but has, in addition, the added advantage of hand application and replacement at the rig.

The "Safety Area" of the Reed *Super Shrink-Grip* Tool Joint is an extended tool joint counter-bore which is shrunk onto a smooth land on the drill pipe. This extended counter-bore effects a seal against leakage at the last engaged thread and supports the drill pipe against bending and failure.

Added protection is also provided by the gauging shoulder within the tool joint. The end of the drill pipe engages this shoulder and insures a predetermined make-up plus an added seal against leakage and failure.

Application of the tool joints to the drill pipe is a simple operation and can be made by hand on the most remote and "hard to get at" locations. Replacements are made by simply cutting off the damaged tool joint with a cutting torch and screwing on the new by hand.

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REED *Super Shrink-Grip* TOOL JOINTS FOR INTERNAL UPSET DRILL PIPE

FULL HOLE

SIZE	Tool Joint Dia. O.D.	Tool Joint Dia. I.D.	Tool Joint Length Approx.	Diameter of Upset Drill Pipe: Diameter of Land	Diameter of Upset Drill Pipe: Inside Diameter
*2⅞"	4"	1⅞"	17"	3"	1 11/16"
3½"	4⅝"	‡2 1/16"	18"	3⅝"	2⅛"
4"	5¼"	2 11/16"	20"	4⅛"	2 11/16"
4½"	5¾"	†3"	20"	4⅝"	3 1/16"
5 1/16"	7"	**4"	22"	5 11/16"	4"
6⅝"	8"	5"	24"	6¾"	5"

Note: Acme Full Hole can be Furnished in Sizes: 3½"—4½" and 5 1/16".
* Reed Full Hole, Not A.P.I. Standard. † 2 11/16" or 3 1/16" Optional.
** 3 11/16" Optional. ‡ 1⅞" Optional.

SEMI-INTERNAL FLUSH

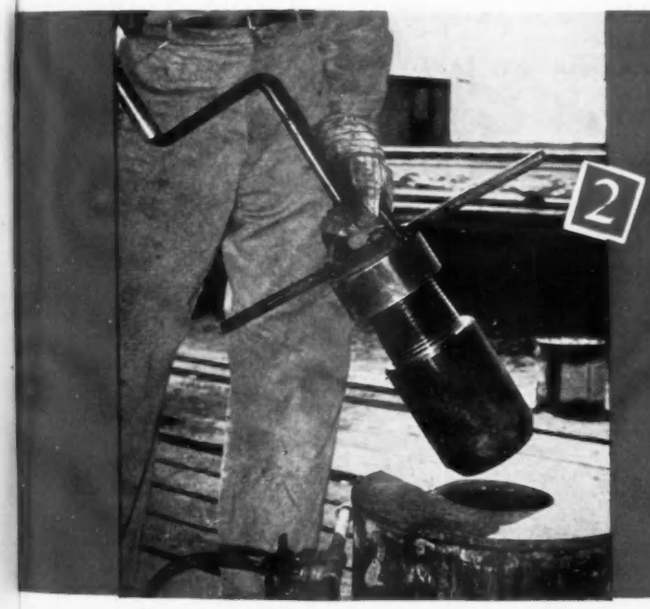
SIZE	Tool Joint Dia. O.D.	Tool Joint Dia. I.D.	Tool Joint Length Approx.	Diameter of Upset Drill Pipe: Diameter of Land	Diameter of Upset Drill Pipe: Inside Diameter
3½"	4⅞"	2 1/16"	18"	3⅝"	2¼"
4½"	6"	3 1/16"	20"	4⅝"	3 1/16"

Note: The Tool Joint Box and Pin Connections have 4 A.P.I. Threads per Inch, with Larger Pin Diameter than A.P.I. Full Hole.

REED *Super Shrink-Grip* TOOL JOINTS FOR INTERNAL FLUSH DRILL PIPE

SIZE	Tool Joint Dia. O.D.	Tool Joint Dia. I.D.	Tool Joint Length Approx.	Diameter of Upset Drill Pipe
2⅞"	4⅛"	2¼"	17"	3¼"
3½"	4¾"	2 11/16"	18"	3⅞"
4"	5¾"	†3"	20"	4 5/16"
4½"	6⅛"	3¾"	20"	5 1/16"

† 2 11/16" or 3 1/16" Optional.



The tool joint is heated to a temperature of 650° F. to 675° F. A lead stick is pressed lightly against the heated joint and when the lead starts to melt, the operator knows that the heat is at the proper temperature for application to the drill pipe. The heated tool joint is carried on the wrench to the end of the pipe, to which it is to be attached.

By means of the brace type wrench the heated tool joint is quickly screwed onto the drill pipe until the shoulder within the tool joint seats on the end of the drill pipe. Cooling causes the tool joint to shrink onto the drill pipe. Then the tool joint and drill pipe are ready for drilling service.

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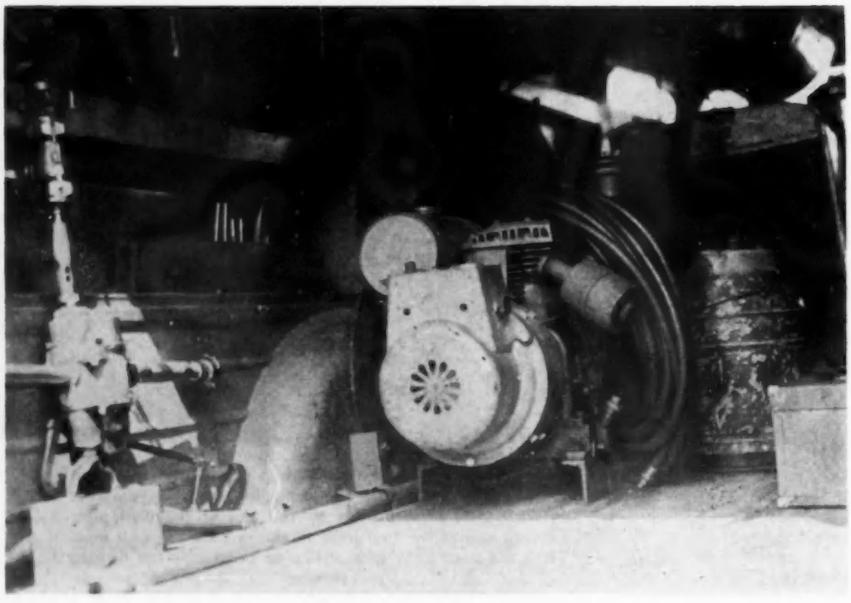
No-go gauge for determining worn places on external pipe walls.

the cut. The driller knows. The driller is sure the tool dresser kept a record of where the cuts were made. The tool dresser is sure that Sam remembers; Sam thinks that his buddy knows. So here is a string of pipe with two dangerous internal potential failures; no one knows where and because of this, the engineer will not take a chance on ruining the well so the entire string will be stacked, unless they simply look inside each pipe and find these cuts. And this is done with the tuboscope.

Or suppose the drill pipe has been operating in conditions favorable for localized electrolytic currents. Usually the evidence of such a condition is found by pitting inside the pipe; the outer surface may be smooth. Such pits start stress concentrations, which in turn cause the material to fatigue and develop small cracks at that point. Once this begins, early failure is a certainty. The tuboscope finds these pits and fatigue cracks. The same applies to material washouts in the pipe walls.

Occasionally the manufacturer fails to detect flaws on the inside of the pipe caused by some freak process in fabrication. Such defects as laps or seams in the pipe walls are not readily detected unless viewed with some device such as the tuboscope. Internal shoulders may be readily discovered with the tuboscope; last and gauge thread failures can be detected; short upset, the result of field tool joint removal, is also easily found.



Interior view of service truck showing small air compressor that provides motive power for cleaning brushes and small air drill that rotates the brushes.

Bonus Allowables

[*Continued from page 26*]

allowable equally among subsequently drilled wells of the same operator.

In discussions preceding the recommendation of this means of granting discovery allowables, it was indicated that there might be a legal question as to whether or not the Corporation Commission has the power to fix discovery allowables. In the state of Texas, which has been operating since January 15 of this year under a comparable order, there so far has been no attack upon the legality of the Railroad Commission's order. There is in immediate prospect, however, a protest as to the interpretation of the Texas order, specifically as to the number of new wells which are entitled to special allowables under its provisions.

As to the legality of the order in Oklahoma, there is some question as to the authority vested in the commission, although a majority of those considering the suggested order feel that the courts would uphold the commission in this authority were they to hear a test. Regardless of this phase, it must be recognized that the owners of leases adjacent any discovery well, and on the same geologic feature, are materially assisted by a successful completion on nearby property, and that if they seek recourse in the courts, they must do so on the question of unequal recoveries; very doubtfully upon the question of injury to holdings. In this it was stated that the benefits of the discovery would materially out-weigh the minor damage to correlative rights.

In Kansas, where the Conservation Department of the Corporation Commission is charged with allocating production within a pool so that wells of equal potentials and acreage get equal allowables, this type of discovery grant could only be ordered following a change in the law.

Development of additional reserves is a critical item in present oil economy. These two orders will not materially affect the drilling of additional wildcat wells by the majors or by the larger independents, for their wildcat program would hardly be subject to expansion through this type of inducement, but the smaller firms would be enabled to replenish their treasuries more rapidly by being granted allowables approximately equivalent to the drilling costs of the wildcat test, and would then be able to turn this money into other wildcat tests at an early date. The degree to which wildcatting may be stimulated through this order can only be determined after prolonged application, but it is felt that minor increase in discovery rates would make the enactment of the plan desirable.

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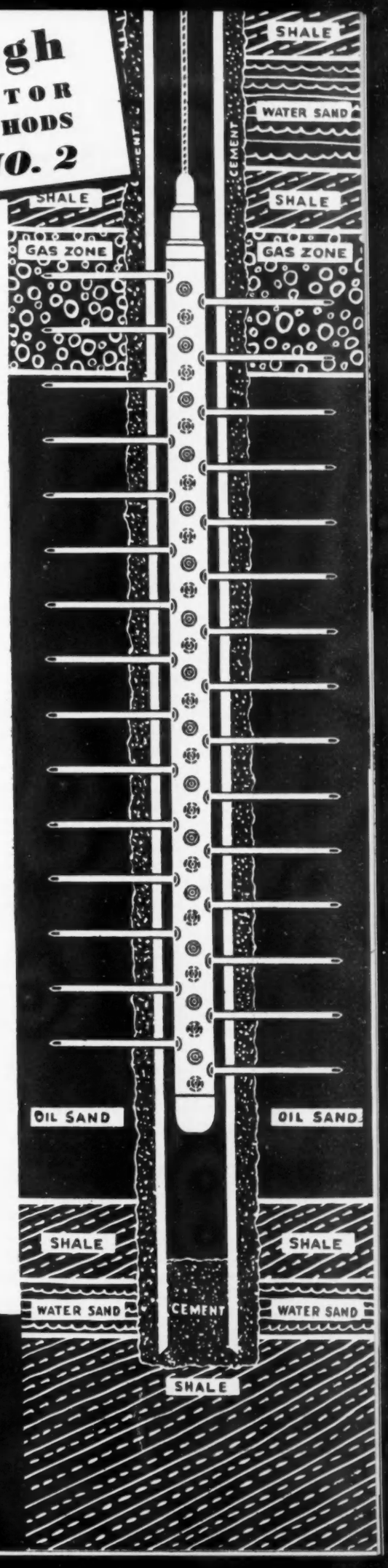

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Chart for Calculation of Pressure Drop in Gas Lines

By EMORY N. KEMLER
Professor of Mechanical Engineering, Purdue University

Plotted values for pressure difference data permit rapid evaluation of flow factors in given diameter lines and enable calculations to be made without involved computation. Modifications of original Weymouth formula to facilitate plotting permit results from charts within probable error limits of pipe and friction measurements and conforming to standard engineering practice.

CALCULATION of the pressure drop in gas lines enters both into the planning of new designs and the modification of existing systems to utilize their capacity to the fullest extent. The two types of problems commonly encountered in such calculations are those where it is desired to know the pressure difference which must be supplied to give a given quantity of flow and those where the flow which can be obtained with a given pressure difference is to be determined. This article will show how charts can be applied to the solution of such problems.

The Weymouth formula which is commonly used for making such calculations can be written in the form (all pressures in pounds per square inch absolute)

$$p_1^2 - p_2^2 = 87.5 \frac{f l p_1 V_1^2 \rho_1}{d^5} \qquad (1)$$

where
p_1 is the inlet pressure in lb/in.^{2} absolute
p_2 is the discharge pressure in lb./in.^{2} absolute
f is the friction factor
l is the length in feet
V_1 is the volume of flow in ft^3/sec at pressure p_1
d is the diameter of pipe in inches
ρ is the density of fluid in lb/ft^3 at pressure p_1

The disadvantage of using this type of formula is that it involves solution of a quadratic equation for determination of p_2 or p_1 which is necessary if $p_1 - p_2$ is to be found. A further disadvantage of this formula is that it is not readily adaptable to solution by the use of charts.

It can be shown that the pressure drop can be calculated from the equation for flow of liquids or incompressible fluids if a suitable correction factor is applied. The formula for flow of liquids can be written as

$$p_1 - p_2 = 43.75 \frac{f l V_1^2 \rho_1}{d^5} \qquad (2)$$

If the equivalent value of ρ or $\frac{144\, p_1}{RT}$

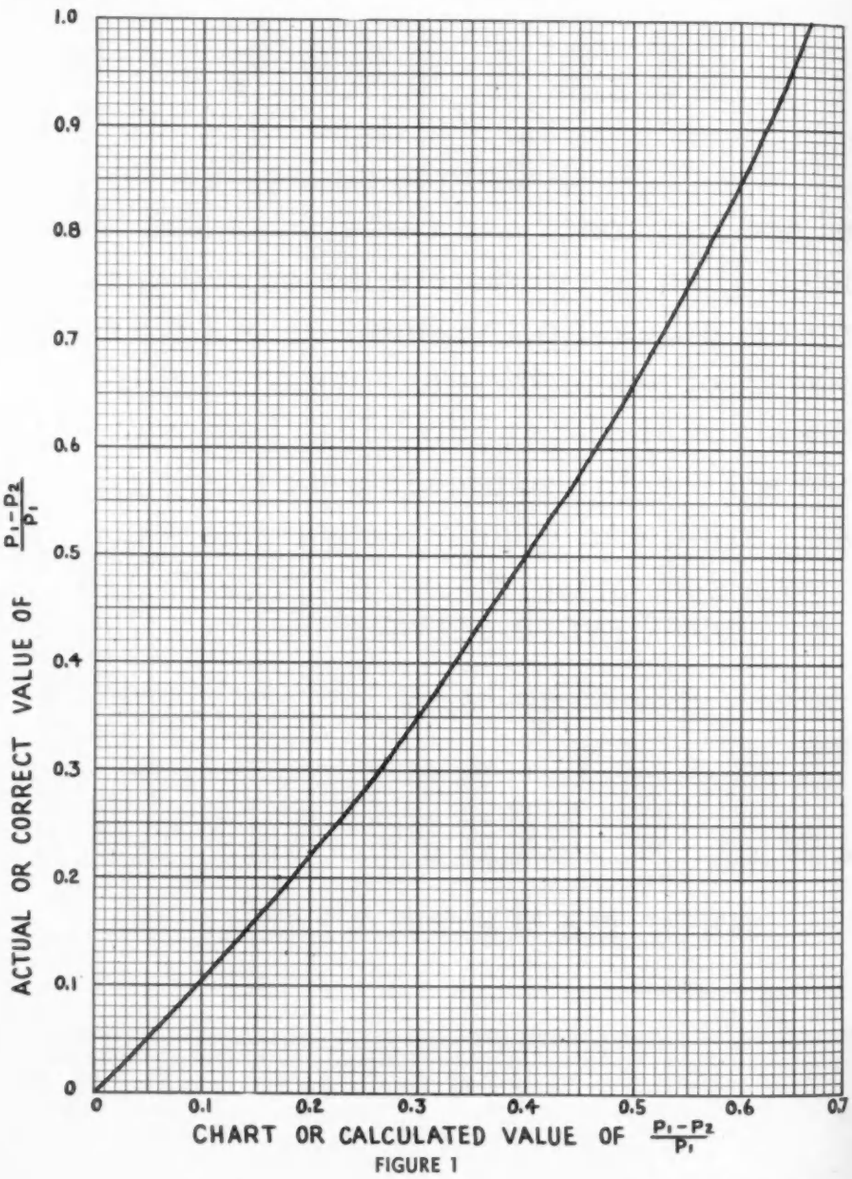

FIGURE 1

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Your "Caterpillar" dealer is a substantial member of the community. He had to have capital, ability and integrity to start in business. And he will stay in it because he believes that the outstanding record of "Caterpillar" Diesel equipment on the war fronts will build a still greater demand for these machines for the heavy jobs of reconstruction and peace.

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He is making a real contribution to the war effort. Not only do the owners of "Caterpillar" Diesel equipment depend on him for genuine parts and service, but the Government uses his facilities to keep machines in fighting trim. His modern shop practice enables him to save time and money for owners and to conserve the tons of war-needed metal.

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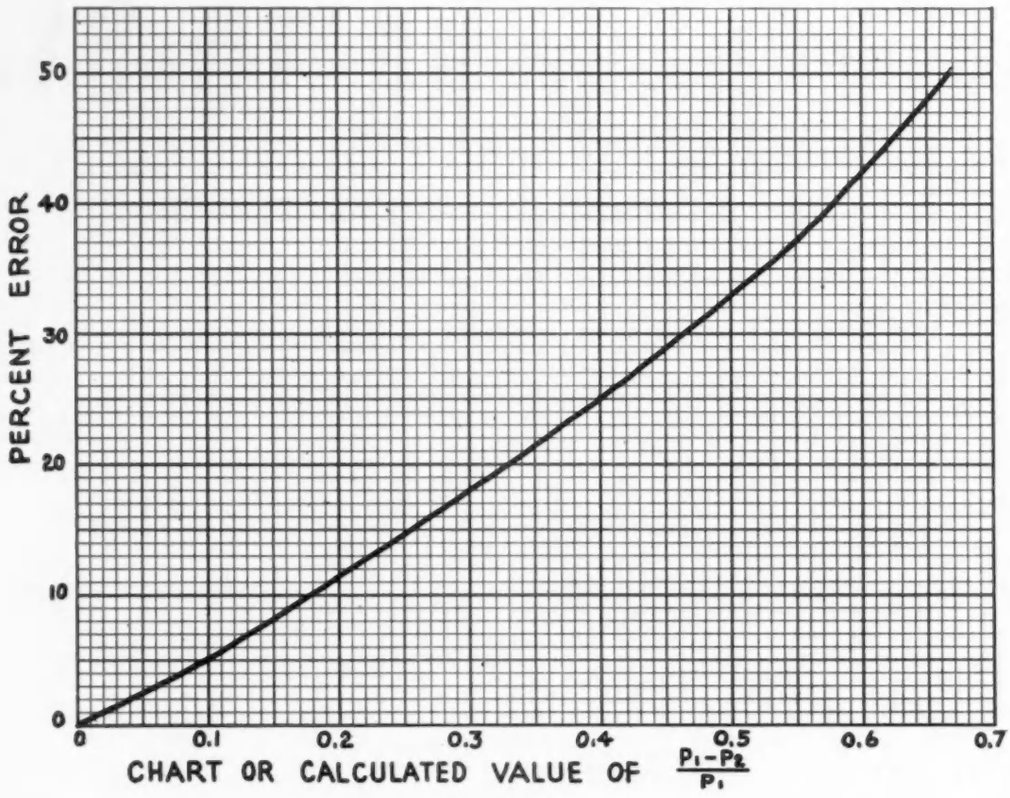


FIGURE 2

is substituted in (2) and equation 2 is divided by p_1, we would have

$$\frac{p_1 - p_2}{p_1} = 6300 \frac{fl}{RT} \frac{V_1^2}{d^5} \qquad (3)$$

The value of pressure drop as given by equation (3) will be incorrect. If, however, the approximate value as given by equation (3) is known, the correct value can be determined from Figure 1. The percentage error involved in using equation (3) is shown in Figure 2. The percentage error can be found by dividing the error, which is the difference in equations 1 and 2, by equation 2. Figure 2 can be used to determine the range over which the incompressible flow equation can be applied to compressible flow problems. It is commonly stated that the incompressible flow equation can be applied provided the pressure drop does not exceed 10 percent of the inlet or initial pressure. Figure 2 shows that for this condition, that is $\frac{p_1 - p_2}{p_1} = 0.10$ the percentage of error is 5 percent. The error at any value can be readily determined from Figure 2. The correct value can be determined from Figure 1.

If Weymouth's value for the friction factor $f = \frac{.032}{d^{1/3}}$ is substituted in equation 3, it can be written as

$$\frac{p_1 - p_2}{p_1} = .00513 \frac{L Q_1^2 S}{d^{5\ 1/3}} \qquad (4)$$

where
L is the length in miles
S is the specific gravity of the gas
Q is the volume of flow in 1000 ft³ per day at pressure p_1.

If a length of 1 mile is assumed and a specific gravity of 1 is used, equation 4 would reduce to

$$\frac{p_1 - p_2}{p_1} = .00513 \frac{Q_1^2}{d^{5\ 1/3}} \qquad (5)$$

A chart can be easily made for this formula. Such a chart is shown in Figures 3 and 4.* Because of the wide range of flow conditions, 2 charts have been drawn. These charts as given will be sufficiently accurate for most calculations and will usually be as accurate as the data. If the friction factor comes within 10 percent of the value assumed the choice will be extremely fortunate. If the diameter varies 2 percent from the nominal values used in making calculations it will affect the pressure drop by about 12 percent. When these factors are taken into account the accuracy of the charts will be seen to be as good as required by most engineering problems. If more accurate calculations are desired, the charts can be enlarged and the accuracy will be increased. The accuracy obtained will be equivalent to that from a slide rule having a log scale the length of each cycle on the chart.

In order to facilitate making the calculations Figure 5 has been included. This chart converts the flow at standard conditions to the flow at pressure p_1. The formula for flow of compressible fluids normally includes the absolute temperature. If the specific gravity is measured at 14.7 pounds per square inch and the temperature in the line, no further correction for temperature is necessary. If the correction is not made in the specific gravity it can be made by multiplying the pressure drop by the ratio of absolute temperatures. If T is the temperature in degrees Fahrenheit the pressure drop should be multiplied by $\left(\frac{520}{460 + T}\right)$.

The use of the method outlined above for determining pressure drop is best explained by use of examples. Consider first a case where 340,000 cubic feet of gas per day at 14.7 pounds per square inch are to be handled through a 2½-inch line 20 miles long. The pressure at the inlet of the line is 250 pounds per square inch and the specific gravity of the gas at 14.7 pounds per square inch and the line temperature of 60° F. is 0.7. The problem is to determine the pressure drop in the line and the pressure at the discharge.

The steps to follow are:

1. Find Q_1 at 250 lb/in.²
2. Find $\frac{p_1 - p_2}{p_1 L}$ from chart 3.

*See pages 37 and 38.

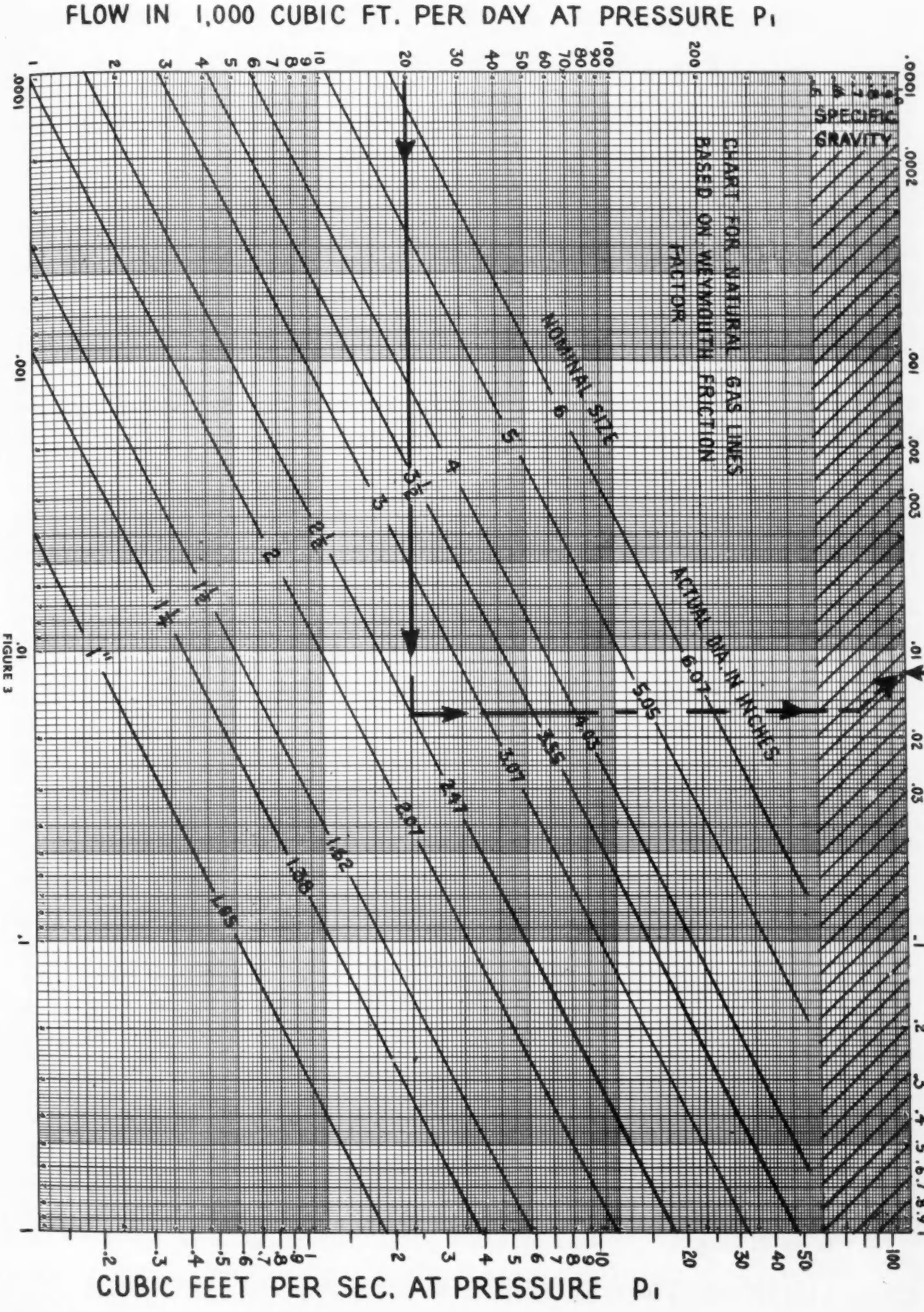

FLOW IN 1,000 CUBIC FT. PER DAY AT PRESSURE P1
CUBIC FEET PER SEC. AT PRESSURE P1
P1-P2 / P.L.
CHART OR CALCULATED VALUE
CHART FOR NATURAL GAS LINES BASED ON WEYMOUTH FRICTION FACTOR
SPECIFIC GRAVITY
NOMINAL SIZE
ACTUAL DIA. IN INCHES
6.07
5.05
4.03
3.55
3.07
2.47
2.07
1.62
1.38
1.05
6
5
4
3½
3
2½
2
1½
1¼
1"

FIGURE 3

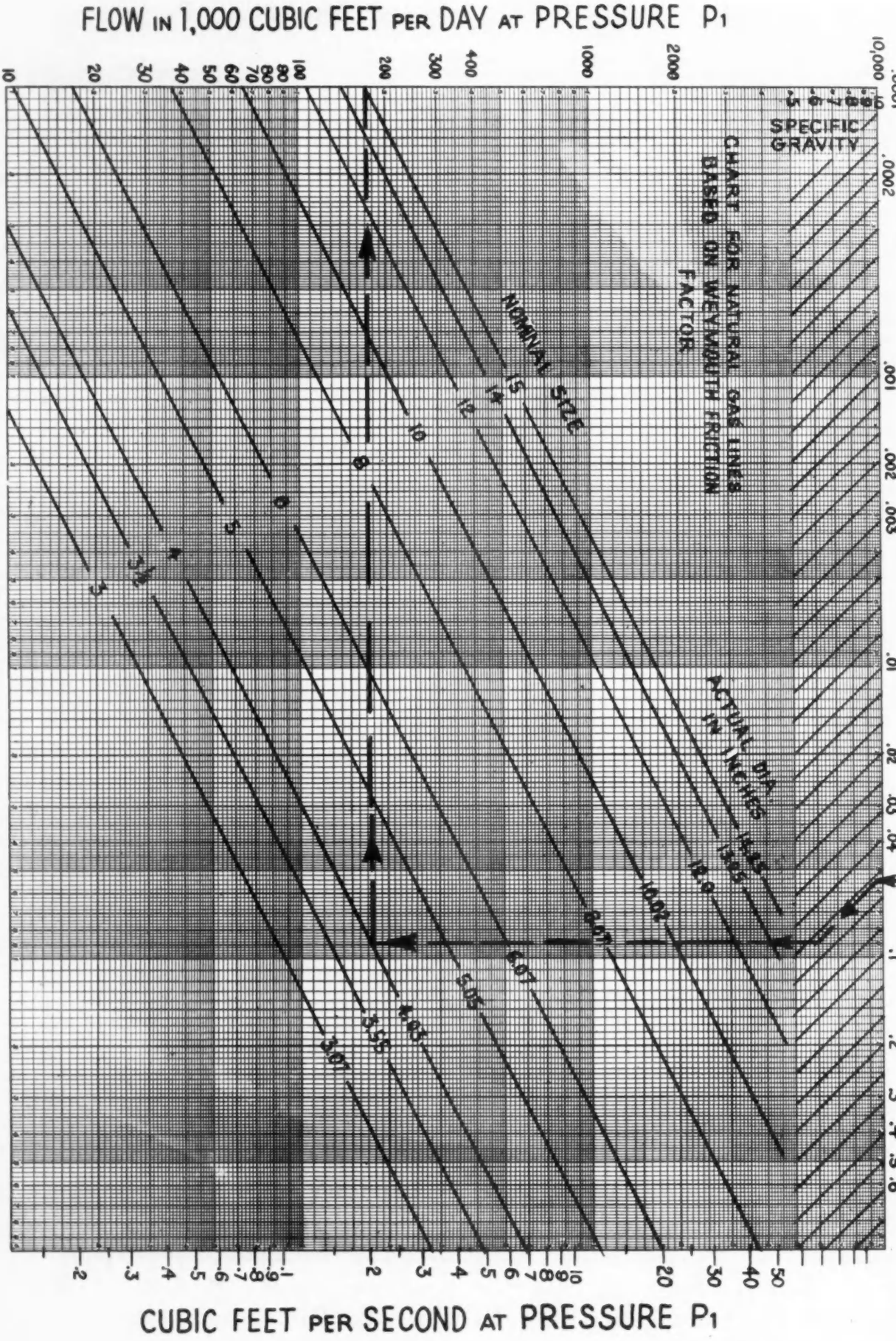
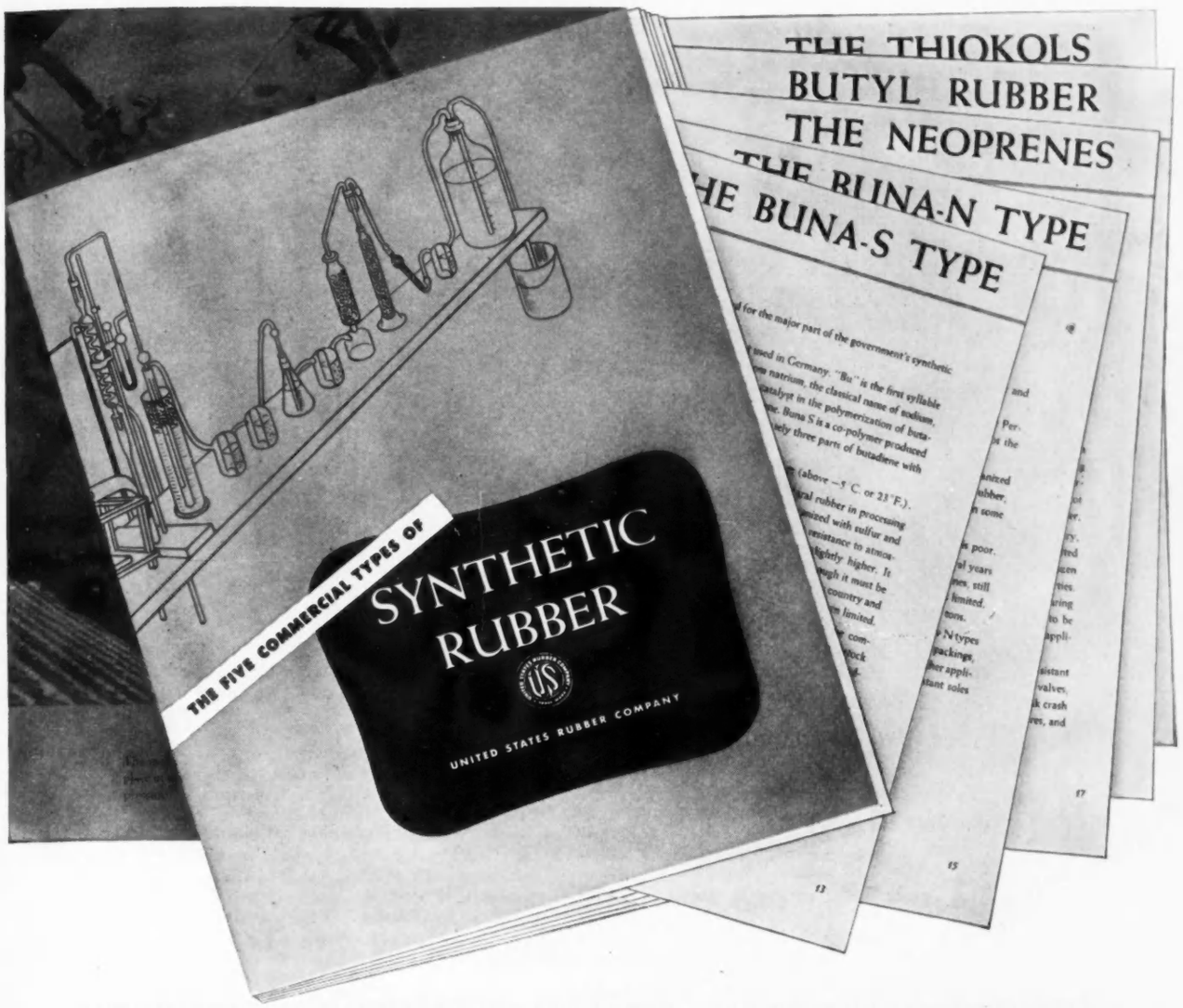

FLOW IN 1,000 CUBIC FEET PER DAY AT PRESSURE P1
CHART FOR NATURAL GAS LINES BASED ON WEYMOUTH FRICTION FACTOR
SPECIFIC GRAVITY
NOMINAL SIZE
ACTUAL DIA. IN INCHES
CUBIC FEET PER SECOND AT PRESSURE P1
(P1 - P2)/P1 (CHART OR CALCULATED VALUE)

FIGURE 4



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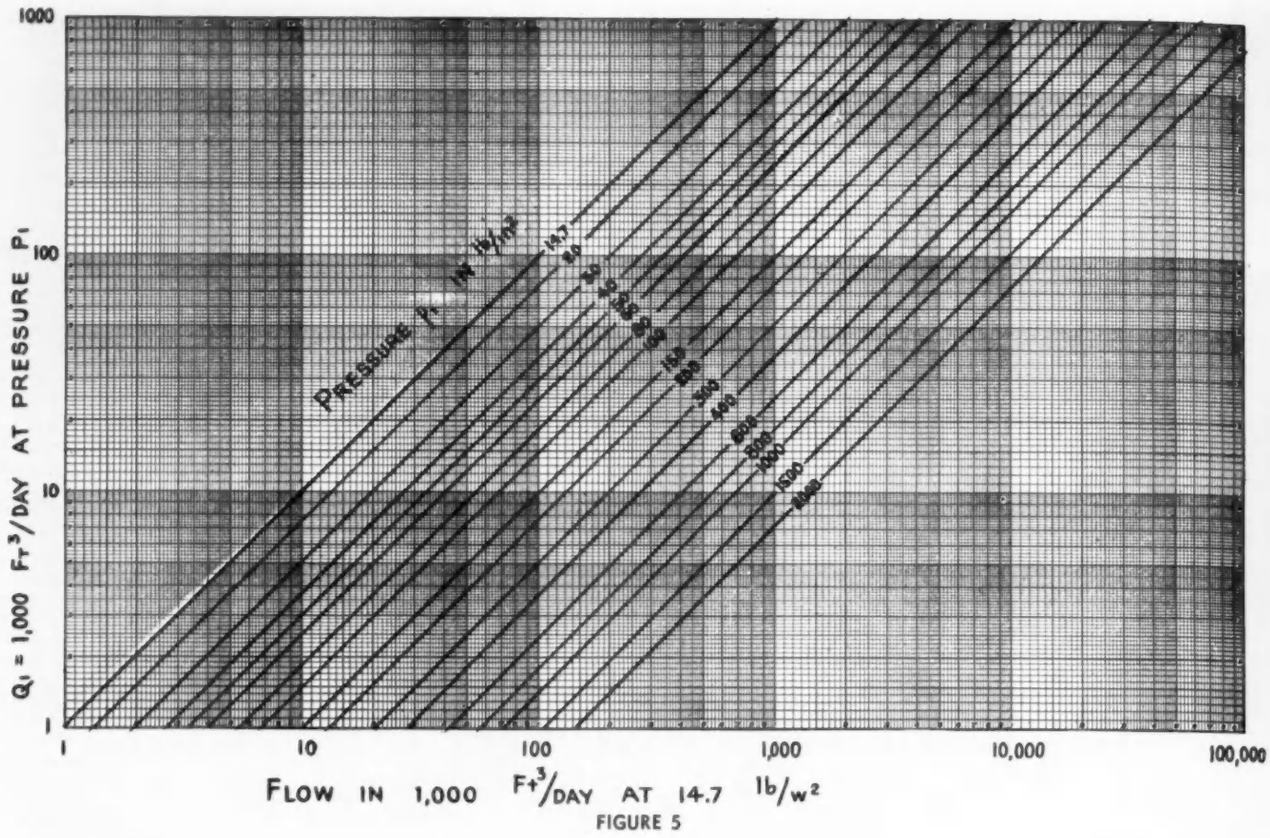


FIGURE 5

3. Find $\frac{p_1 - p_2}{p_1}$ as calculated or from chart.

4. Find correct value of $\frac{p_1 - p_2}{p_1}$.

5. Find $p_1 - p_2$.

Step 1. Find volume = $340{,}000 \times \frac{14.7}{250}$ = 20,000 ft³/day at pressure p_1.

$$Q_1 = \frac{20{,}000}{1000} = 20$$

Q_1 could have been obtained from Figure 5 by entering chart at scale marked gas volume at 14.7 pounds per square inch, at 34,000, tracing across to $p_1 = 250$ pounds per square inch, then down and find $Q_1 = 20$ M cubic feet per day.

Step 2. From Figure 3, find $\frac{p_1 - p_2}{p_1 L}$ by entering chart at scale marked Q_1 = flow in 1000 cubic feet per day at pressure p_1, trace across to line for 2½-inch pipe, then up to line for specific gravity of 0.7, then parallel to diagonal line as indicated and read

$\frac{p_1 - p_2}{p_1 L} = 0.012$ on upper scale.

Step 3.

$\frac{p_1 - p_2}{p_1} = L \times \frac{p_1 - p_2}{p_1 L} = .012 \times 20 = .240 =$ calculated or chart value.

Step 4. Enter Figure 1 on scale reading calculated or chart value of $\frac{p_1 - p_2}{p_1} = .24$ follow up to curve, then across and read correct value of $\frac{p_1 - p_2}{p_1} = 0.270$.

Step 5. $p_1 - p_2 = \frac{p_1 - p_2}{p_1} \times p_1 = 0.270 \times 250 = 67.5$ lb./in.²

$p_2 = p_1 - 67.5 = 250 - 67.5 = 182.5$ lb./in.²

The problem of finding the quantity of flow for a given pipe size is the reverse of this process. The steps are as follows:

Step 1. From pressures find $\frac{p_1 - p_2}{p_1}$ actual.

Step 2. From Figure 1, find $\frac{p_1 - p_2}{p_1}$ from chart or as calculated for formula 3.

Step 3. Calculate $\frac{p_1 - p_2}{p_1 L}$ as based on chart or calculated value.

Step 4. Enter chart (Figure 3 or 4), at top for value of $\frac{p_1 - p_2}{p_1 L}$.

Trace parallel to diagonal lines to value of specific gravity, then trace down to diameter, then across and read Q_1.

Step 5. To find volume of gas at standard conditions use Figure 5.

As an example consider the problem of determining the quantity of flow for the case where pressure at inlet to a line is 400 pounds per square inch, line is 4 inches in diameter and 10 inches long, gas has specific gravity of 0.6 at line temperature, and the discharge pressure is to be 100 pounds per square inch.

Step 1. $\frac{p_1 - p_2}{p_1}$ "actual" = $\frac{400 - 100}{400}$ = 0.75 "actual."

Step 2. Enter Figure 1 at right hand scale reading $\frac{p_1 - p_2}{p_1}$ "actual," trace across to curve, then down and read $\frac{p_1 - p_2}{p_1}$ from chart to be 0.545.

Step 3. $\frac{p_1 - p_2}{p_1 L}$ from chart = $\frac{0.545}{10}$ = .0545.

Step 4. Enter Figure 4 at value of $\frac{p_1 - p_2}{p_1 L} = .0545$. Trace down parallel to diagonal lines to line for specific gravity equal to 0.6, then down to 4 inch line, then across and read $Q_1 = 175$.

Step 5. From chart 5 or by calculation the volume of gas at 14.7 lb./in.², would be

$Q = 175 \times 1000 \times \frac{400}{14.7} = 4{,}760{,}000$ ft.³/day.

The charts for determining the pressure drop are based on the Weymouth value for friction factor. They will be no more accurate than the value for friction factor and will be applicable over the range of conditions for which the formula has been used by the industry.

REFERENCES

J. A. Hardy and E. N. Kemler—Pressure Drop Calculations for Flow in Pipes—Heating and Ventilating, Aug., 1942, pp. 43-49. E. N. Kemler and N. Kulik—Flow of Natural Gas in Pipe Lines (1942 Spring Meeting of API Pgh). Also in Sept. 24, 1942, Gas Age, pp. 20-26.

Baash-Ross News

BAASH-ROSS TOOL COMPANY · LOS ANGELES · HOUSTON · NEW YORK

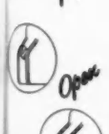
OIL WEEKLY EDITION

THESE 7 UNITIZED BLOCK FEATURES ARE *Revolutionizing* PORTABLE RIG OPERATIONS

EVERY day an increasing number of operators are switching to portable drilling and production rigs for medium and shallow jobs because of the great savings in time and materials these rigs make possible. And here's an important fact to remember if you are using—or considering using—portable rig equipment... Baash-Ross, working in conjunction with oil company engineers, has developed a *complete line* of Unitized Block Assemblies especially designed for this type of work. Baash-Ross Unitized Blocks are unusually compact, saving valuable rig space and increasing the effective working height of the derrick. They incorporate in *one space-saving unit*, both the Block and Link Adapter assembly, eliminating the hook bail and other space-wasting units found in conventional Block-plus-Hook assemblies. And they provide many other outstanding features especially important in stepping up efficiency, reducing waste time and increasing the speed of portable rig operations....

Feature 1 **Save Valuable Derrick Space!** By compacting both the Block and Link Adapter into one carefully engineered unit, Baash-Ross Unitized Blocks save much valuable space in portable rigs. They actually increase the working height of the rig by several feet, minimizing risk of running into the crown and giving more working clearance at the floor when making up and breaking out joints. This added room greatly speeds up operations around the rig—permits the crew to make faster round trips—and reduces the working hazards of conventional close-quartered portable outfits!

Feature 2 **Simplify Operations!** Not only do the Unitized Blocks speed up rig operations by giving more working room between floor and crown, but also eliminate much wasted time changing from one type of equipment to another. **ALL** operations—running drill pipe in and out of the hole, supporting swivel and string while drilling, running tubing, rods, etc.—can be done with the **same** compact unit!



Feature 3 **Link Adapter is Free-Swivelling!** The link adapter assembly swivels in a complete 360° circle, freely and effortlessly. By means of a unique method of spring-loading the bearing, the link adapter swivels just as easily whether the Block is empty or carrying a full load. Eliminates twisted lines and wasted time!

Feature 4 **Convenient Built-In Lock!** A locking device is incorporated in the body of the Link Adapter which will lock the unit against rotation in any one of 4 different positions. This speeds up running in the hole by holding the elevators in a pre-determined position for the derrick man... and is useful in many other operations.

Feature 5 **Rubber Bumper Safeguards Tool Joints!** You can't damage the top of your tool joints by dropping the Block against them because a soft rubber bumper on the bottom of the assembly prevents this. This safety feature is particularly important on portable rig operations where striking the tool joints is almost unavoidable due to the close working space between pipe and Blocks.

Feature 6 **Detachable Bail for Miscellaneous Work!** Frequently in portable rig operations there are jobs that can be done more effectively with a bail than with the elevators, such as running rods, automatic casing elevators, lifting heavy equipment, etc. For these operations a bail can be quickly attached to the Link Adapter, simplifying this type of work and eliminating the need of changing the unit!

Feature 7 **A Unitized Block for EVERY Purpose!** So popular have Baash-Ross Unitized Blocks become among operators that we have recently extended the line to include a unit for practically every purpose within the range of portable and slim-hole rigs. The Block can be supplied in 1, 2, 3 and 4 sheave models, each in a choice of 20", 24", 30", and 36" diameter sheaves. This gives a selection of SIXTEEN different sizes—in a capacity range of 30, 65, 100 and 150 tons—a unit to fit practically **EVERY** requirement!

A bulletin is available fully describing this Baash-Ross development—its many heavy-duty construction features and the compact overall dimensions of the various units available. Send for this information today... or see your nearby Baash-Ross representative for complete details!

Many Factors Behind Current Flurry Of Producing Lease Sales

Chief causes are advanced selling levels at a time when many small operators are discouraged by disappearance of profit margin due to low oil prices and rising operating costs, larger taxes, manpower shortage, governmental orders and fear of future government course

By RIVERS REAVES, Staff Writer

MORE oil producing properties have changed hands during the past 12 months than during any similar period of the past decade. There appears to be a greater inclination on the part of independent or small operators to dispose of producing properties, and more willingness on the part of large concerns to purchase. The widespread demand for producing acreage is not confined to any particular locality; the larger companies are buying production in all oil areas. Several big deals have been consummated during the past year.

Since the beginning of the industry small companies have found it expedient at times to sell their properties to larger concerns. There have been various reasons for this. Often trades have occurred after a small operator opened a new field and found it financially advisable to sell rather than to try to finance the development and operation of the leases. In other cases, properties were sold where an estate was liquidated. These factors are still in existence, but other influences also are at work.

Many reasons have been advanced as to why there is a current flurry of property sales. These factors seem to be the primary causes:

Higher prices are being paid for producing properties.

Disappearance of profit, because crude oil price ceilings are too low and operating costs have advanced considerably.

High taxes, and government threat to disturb established special oil tax structures.

Government bureaucry, which has resulted in increased red tape, and numerous reports and questionnaires to compile.

Loss of manpower as a result of military requirements.

Failure or difficulty of obtaining sufficient operating equipment.

Prices being paid for producing properties are much greater than those prevailing prior to Pearl Harbor. Values have climbed from 33 to 50 per cent above prewar quotations, and in some regions are still advancing. Two major companies are understood to have put a ceiling of $100,000 per well on better leases in the East Texas field, although they have not paid this price yet.

Since no company can step out under present restrictions on materials and shortage of manpower and drill 50 to 100 wells on proved acreage, it only follows that they are willing to buy the necessary producing ability they require to keep refineries operating at the high level that consumption demands. The element of chance, of course, is lessened when they take property on which reserves are reasonably priced.

In some instances, buyers are long on cash. With refinery sales at high levels, and drilling operations reduced, some large companies have considerable cash available for investment. Ordinarily they would be plowing this back into the drilling of more wells, but unable to do this, they now buy producing properties.

Buyers naturally are interested in choice properties, but with the available supply becoming less and less as deals are consummated, prices paid are rising.

Some independents are selling their properties because of financial pressure by banks and lending agencies, although there are not many of this type. In some cases, however, small operators find themselces in a peculiar position: With crude production allowables rising they are forced into higher income tax brackets, and as a result are liquidating their assets without getting sufficient additional revenue to pay off bank loans. Naturally, the banks are not happy about such situations.

A fear of further change in the tax system is a matter of deep concern to many small operators, and is an important factor in causing them to dispose of their holdings. This is the result of repeated efforts on the part of the Treasury Department to abolish the depletion allowance provision. Near the close of World War I the nation faced a shortage of oil, and to encourage the flow of capital into oil exploration Congress passed a law, effective in 1918, providing for a deduction from income tax of an allowable for oil depletion. In 1926, Congress again considered the proposal, and corrected and improved the provision by providing for a percentage depletion allowance.

Congressional action in providing the depletion allowance and the action of the Treasury Department in permitting deduction of intangible development costs and geological expenditures have contributed greatly to the expansion of crude reserves. Taking away of these provisions would be a severe blow to the industry.

Some independent producers are placing their properties on the market because they can realize a greater profit by selling than by operating. As an example, before taxes the profit on an independent lease is $100,000. After taxes the profit is $25,000. If the operator sells the lease at the same $100,000 profit before taxes, his actual profit is greater after taxes due to the tax structure.

On the other hand, because of the manner in which major companies are integrated and the tax structures, the majors can operate the lease without paying as great a tax on the profit as the independent. Thus, both the major and the independent are benefitted by the sales, and in addition the independent does not have to wait over a period of years for his profit.

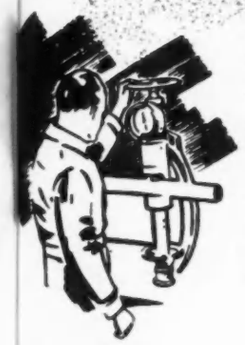
One of the most important factors driving some producers to sell their holdings is the failure to obtain a higher price for crude oil. The OPA froze crude prices in October, 1941, and outside of a few areas ceilings are the same as when established.

Ceilings were fixed at an abnormally low base. The Department of Labor price index for 36 gravity Midcontinent oil (the recognized representative crude) is now 58.9 against the price index of all commodities of 102. This index uses 1926 as a base point.

As a result of the low prices, the

Get pump barrels that are

4 to 8 times HARDER



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small oil man argues that the ceilings will not justify necessary continuous expanded exploratory effort to find new oil, the maintenance of stripper and marginal wells, installation of more and better secondary recovery materials and operations, and venture capital sufficient to all these operations. Confronted with rising operating costs, the independent has become discouraged. He is having trouble making both ends meet.

Those companies engaged purely in the production of oil, referred to as independents, have over a period of years discovered the larger portion of new oil reserves. The only income these operators have is the income received from the sale of crude oil. Integrated companies, engaged in two or more branches of the industry such as producing, refining, etc., are better able to withstand the immediate effect of crude prices through their ability to obtain income from other phases of their activity.

The report of the Treasury Department for 1940, the latest year for which figures are obtainable, shows that of the 5094 corporations engaged exclusively in oil production, 3102 corporations had a net loss. Only 1992 showed any profit. These latter companies had a net profit of $56,416,000 against a net loss of $61,000,000 for the 3102 companies, which is a net loss of $5,000,000 for corporations engaged exclusively in oil production.

Col. Ernest O. Thompson, member of the Texas Railroad Commission, testified recently before a House Committee on Small Business that "some companies are selling out because profit is disappearing, and if this thing is not corrected the profit will disappear from the business of going out and finding wells and producing them. Put the price of oil where an independent will go out again hunting for oil and drilling wells."

Thompson further said "that it is the price per barrel of oil that counts. If you follow the oil business in the last 20 years you will find whenever the price went up appreciably there were immediately a lot of prospects. The price of oil today—it is almost an axiom —controls the rate of discovery two years hence.

"There will be a critical oil shortage by 1945 unless something is done immediately to cause the wildcatter to go out and hunt again. That is the kind of well you want and need. Unless something is done immediately to increase and encourage the prospector going out to find oil, granting the rubber supply is ample and plenty of tires are available, you will have a shortage of gasoline and therefore rationing in 1945.

"The oil producer is faced with a shortage of funds, manpower and materials. The price of oil has been fixed at a very low level, while drilling and operational costs have constantly risen. Many independent oil producers are being forced out of business. Two years ago 17 major oil companies controlled 48 per cent of the known oil reserves in the United States. Now these 17 major companies control 71 per cent of the known oil reserves, or an increase of 23 per cent in two years."

J. P. Coleman, Wichita Falls, Texas, petroleum engineer, testified before the same committee "that all over Texas the major companies are buying out independent producers. This tendency has been greatly accelerated since Pearl Harbor. In Wichita Falls, seven of our very largest and oldest producers have sold out to the majors in the last 15 months. This represents a liquidation of a large number of the most enterprising small companies, most of which have been in business for over 20 years. They would not have stepped out if there were prospects of a reasonable price for their crude."

Another major stumbling block preventing development on the part of some oil companies is the confusion and red-tape among federal agencies. These agencies, some with considerable authority over petroleum problems, are proving a serious detriment to the successful operation of the oil industry.

Oil companies presently are being required to fill out bulky reports, blanks, statements, questionnaires, etc., not previously required. These requests would have been hackneyed, burdensome and inane under normal conditions, but appear even more troublesome and useless under wartime operations when labor, field as well as white collar, is scarce.

Henry M. Dawes, in the annual report of the Pure Oil Company, said when the cost of answering questionnaires amount to as much as 8 per cent of the net profits of a corporation, it would seem wise to dispense with this mass collection of facts and figures.

He referred to the task as a "mass of uncoordinated, immaterial and irrelevant data, compilation of statistics, questionnaires and information asked by government authorities, quasi-government authorities and industry committees."

It is said that in most cases these voluminous bales of data are filed away and forgotten, while the cost in valuable and scarce man hours runs into incalculable amounts.

The average oil company, especially the smaller firms, which would go bankrupt if it operated on the same time-and-money wasting scale as the government agencies, is not used to rummaging through and filling out a mountain of reports. Hence, with this problem before the smaller companies, some of them adopt a do-nothing policy insofar as new development is concerned.

Exploration and drilling companies have been seriously hampered by loss of both skilled and semi-skilled manpower to military services and to defense industries. A mass migration started at the opening of the war with only intermittent let-ups.

Paradoxical as it may seem, the most serious loss has been in the semi-skilled and unskilled types of labor. Hundreds of well operations have been delayed either temporarily or permanently by inability to secure roughnecks, drillers, tool pushers, and roustabouts. Although the scale of pay for these laborers was higher than other types of work in peacetime, the oil companies cannot compete with defense industries for the available supply of workmen.

A number of instances have been reported where drilling contracts were available, but the drilling was postponed due to inefficient help or no help at all. This has resulted in some contractors stacking their rigs even though work is plentiful.

Another factor contributing to the sale of properties is the shortage of materials for drilling normal field operations. Previously, any person could drill when and where he pleased, provided he owned a lease and conformed to state rules regulating the drilling of wells.

Presently very little steel is being allocated for the drilling of old field wells, the bulk of new pipe going into wildcat operations. Often there is considerable delay in getting priorities to purchase the materials, thus involving time and expense. There have been instances where some independent operators have either quit trying to drill more wells or sold their holdings rather than fight the maze of federal red tape and manpower shortage while crude prices remain below parity.

Major operators, with their highly technical staff's advice and the long range view, are keenly aware that more and more oil is going to be required. With the idea that they are always going to be in business, they, therefore, must look to their reserves in oil, and being short now they are out buying all production they can get at going prices.

Large companies must have oil for future demand. Oil will never be cheaper than it is now until more new fields are found. The majors cannot afford to wager their future on finding new fields, but must secure for their supply all that can be bought now. This is simply good merchandising on their part.

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Flowing Water-Flood Production

By T. F. LAWRY
Forest Producing Corporation,
Nowata, Oklahoma

Part 4 of a Symposium on Secondary Recovery

Other parts of this symposium, of which this is the concluding chapter, included:

Part 1—"Significance of Secondary Recovery in the United States," by Paul D. Torrey, chairman of the Standing Subcommittee on Secondary Recovery Methods, American Petroleum Institute. Published June 21 issue.

Part 2—"Secondary Recovery in Terms of the Engineering Problem," by George H. Fancher, professor of petroleum engineering, University of Texas. Published June 28 issue.

Part 3—"Factors Necessary for Consideration in Planning a Secondary Recovery Development," by R. C. Earlougher, Geologic Standards Company. Published July 5 issue.

This symposium was presented at the 28th Annual Meeting of the American Association of Petroleum Geologists, Fort Worth, April 9, 1943.

PERHAPS the most controversial point among water-flood operators today is whether to pump or to flow their production. Because flowing is the newer and less-understood of the two methods, a study of flowing, and comparison of flowing with pumping seems to be a necessity in this symposium on secondary recovery, because of the increased attention being given to water-flooding operations.

Flowing water-flood production involves the utilization of part of the energy of the injection or flooding water to lift the oil and/or water produced from the oil well naturally rather than by means of mechanical pumping equipment. In flowing, therefore, practically no production is obtained until the sand body is saturated with fluid and under hydraulic control.

Necessary Preliminaries

There are two departures necessary from conventional water-flood operations before flowing may be said to be successful. These are: (1) Delayed drilling of oil wells, and (2), cementing of packers in both oil and water-intake wells.

Delayed drilling has been a controversial production method, at times highly favored and at other times being little regarded. It involves the drilling of water-intake wells first with simultaneous water injection into the sand being flooded. When the intake wells have filled the sand until it may be said to be 10 percent fluid saturated, the intake rate on the water wells will suddenly fall, giving the operator a signal that the sand has approached complete fluid saturation and is ready for the drilling of producing wells. One objection to delayed drilling is that the oil wells come in almost wild and may waste substantial quantities of crude. However, this is almost unavoidable because sand conditions are not uniform enough to permit an even flood front to be maintained throughout the sand from the time the first water is injected until the oil well is ready to flow. Consequently, if oil and water wells are drilled simultaneously, a back flood of oil or water from the more permeable streaks upon the less permeable streaks will result in the oil well and delay the entire flood.

The second departure necessary and already mentioned is that of cementing packers in the oil wells. The term "packers" is used from custom, and probably should more properly be referred to as cementing the oil string in the hole. The main thing is to have the oil string set securely in place so the wells may be shut in if necessary without any danger of blowing out if the back-pressure on the oil string becomes relatively high. Packers on tubing are used customarily on all water intake wells, and the same procedure is used in oil wells that are to be flowed. This is as cheap a method as possible, and serves the purpose as well as setting a string of casing; for instance, at the top of the sand and cementing it in for the oil string. Usually 1½- to 2-inch tubing is run and placed so the packer comes right at the top or even down in the sand a few feet. The packer serves to retain the slurry when from 60 to 100 feet of the annulus between the outside of the tubing and the wall of the hole are filled with cement. After the cement has hardened, the tubing can then be supported from the bottom of the hole instead of being hung on the casing head.

The advantages of flowing over pumping are many, but the chief point is economy. Since flowing utilizes some of the energy imparted to the intake water, the mechanical elements for a flowed flood are very simple—just the water pressure plant. No powers or individual pumping units are required; there are no jacks and surface rods to be kept greased and aligned, nor is there a string of sucker rods and working barrels with its valves coming unscrewed, broken, and requiring frequent repair. Aside from the mechanical simplicity of flowing, the lesser cost of materials and the fact that much material is not tied up on one job for a protracted period provide further advantages.

Still another real advantage flowing has over pumping is the reduction in time and number of men required for installation and maintenance of equipment. It usually requires an experienced crew to build powers and run rod lines and set jacks. In addition, still another gang is always needed to pull the rods and tubing on pumping wells. Also, the pumper has to act as nursemaid to a balking engine and oiler to a thousand places that the switcher on a flow job never gives a thought about.

Ultimate Recovery

The question of comparative recovery per acre between flowing and pumping is always brought up in any discussion of the two methods of production. Many operators feel that pumping is superior when high recoveries are indicated, and accept flowing as final salvaging technique. However, an operator

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who is thoroughly convinced regarding the merits of flowing refuses to concede the pumper one barrel of additional recovery per acre than flowing will secure. Figure 13 illustrates what happens when a pair of leases was converted from pumping to flowing compared with what happens to a normal flow lease. When the two pumped leases had been fully converted, it was found during the following month that there was an increase in production. This was probably due to the fact that the leases had been running along with production limited by the volumetric capacity of the pumping equipment. When the wells were flowed, the lease could operate without restriction. Compare these results with figure 15 which illustrates the normal condition when a lease is converted from pumping to flowing. In figure 13, the oil wells had not been drilled until 100 percent fluid saturation was obtained, but in figure 14, the oil and water wells were drilled simultaneously. The case history of Figure 14 indicates that the pressure drop through the sand was lessened only on the order of 33 per cent while the production decline was 50 per cent. It seems rather obvious that something more than back-pressure was responsible for the decline. Otherwise the production would not have remained steady for 9 months, but would have dropped parallel with the original decline curve. A more plausible answer seems to be that the sand was never fully saturated during the pumping life of the flood, and consequently much of the sand would never have been depleted by the conventional pumping method.

A still further advantage of flowing—perhaps it should be called a refinement of technique—is the practice of limited withdrawal. In practice, it works something like this: The oil wells are not completed until 100 percent fluid saturation has been attained, after which all of them are drilled in as nearly simultaneously as possible. At this time, the lease should be very close to peak production. Instead of letting the lease flow unhampered for 24 hours, some predetermined time such as 18 to 22 hours is taken for the gauge, and the wells are then shut in to permit the pressure to build up during the remainder of the day. The following day they are reopened until the lease has made its pre-established quota, and then again shut in. It will be noticed very shortly that the lease will begin to make its oil in less and less time, until finally as little as 12 hours may be all that will be necessary for the lease to make its quota. However, if by accident or on purpose, the lease is not shut in at the quota, but is permitted to flow unhampered, as soon as the back pressure has been relieved, the lease will begin to make more and more water, and less and less oil, until finally in short time, it will actually be making less oil in 24 hours than it did in 12. If the water production is permitted for very many days, it will be impossible to build back to the point of predominate oil and little water production, and probably never back to the point of no water.

Like many procedures which have their origin in common practices, the technique of limited-withdrawal was almost forced into being by accident during a period of proration. The lease on which this method was developed, during the period of proration did not behave like its neighbors, but continued to produce for a longer period, though at not quite as high a rate. Water production did not commence as early on this flood as it did in similar operations,

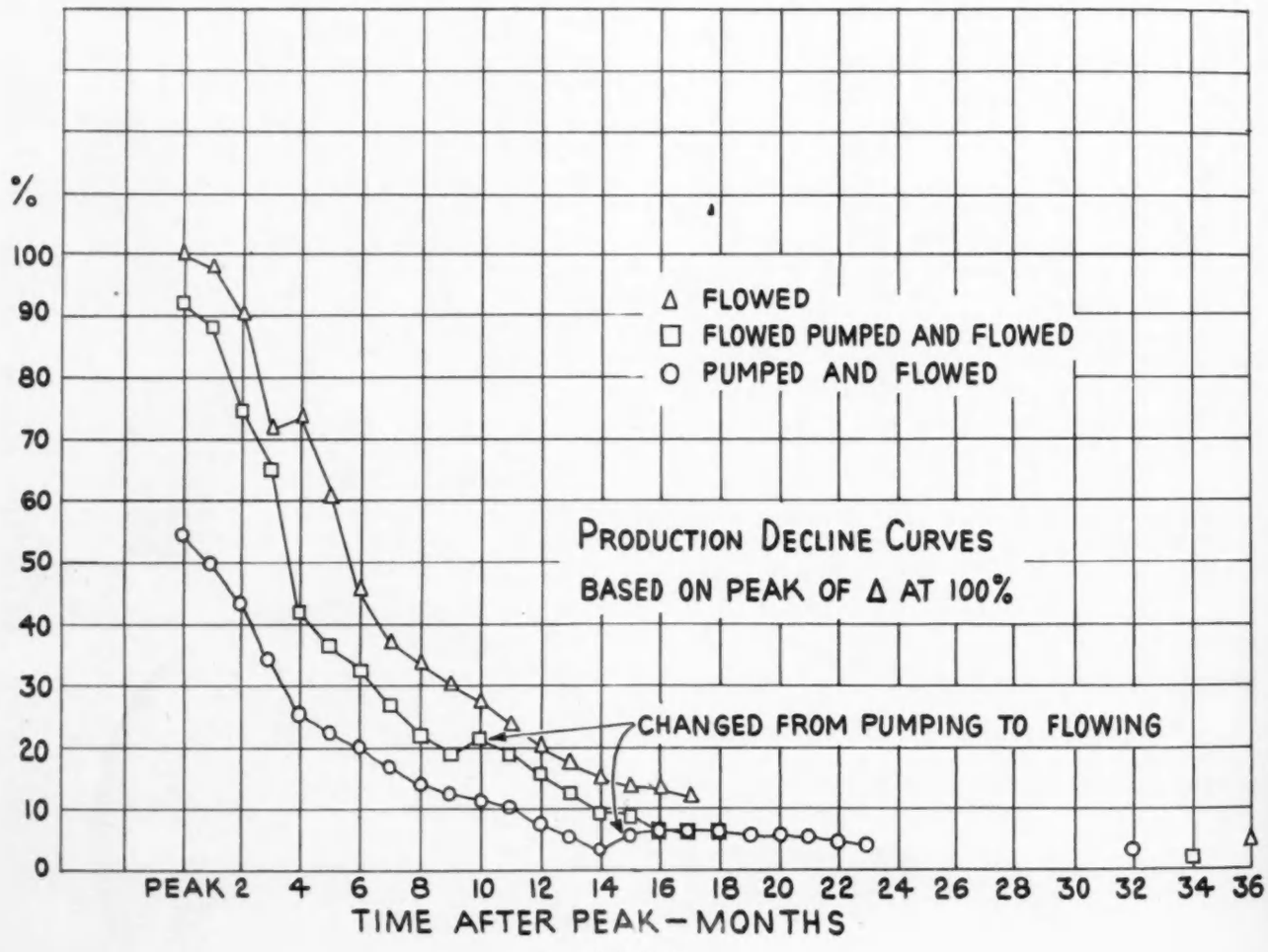

FIGURE 13

Open or Closed, W-K-M's Parallel-Expanding Gate Gives You a

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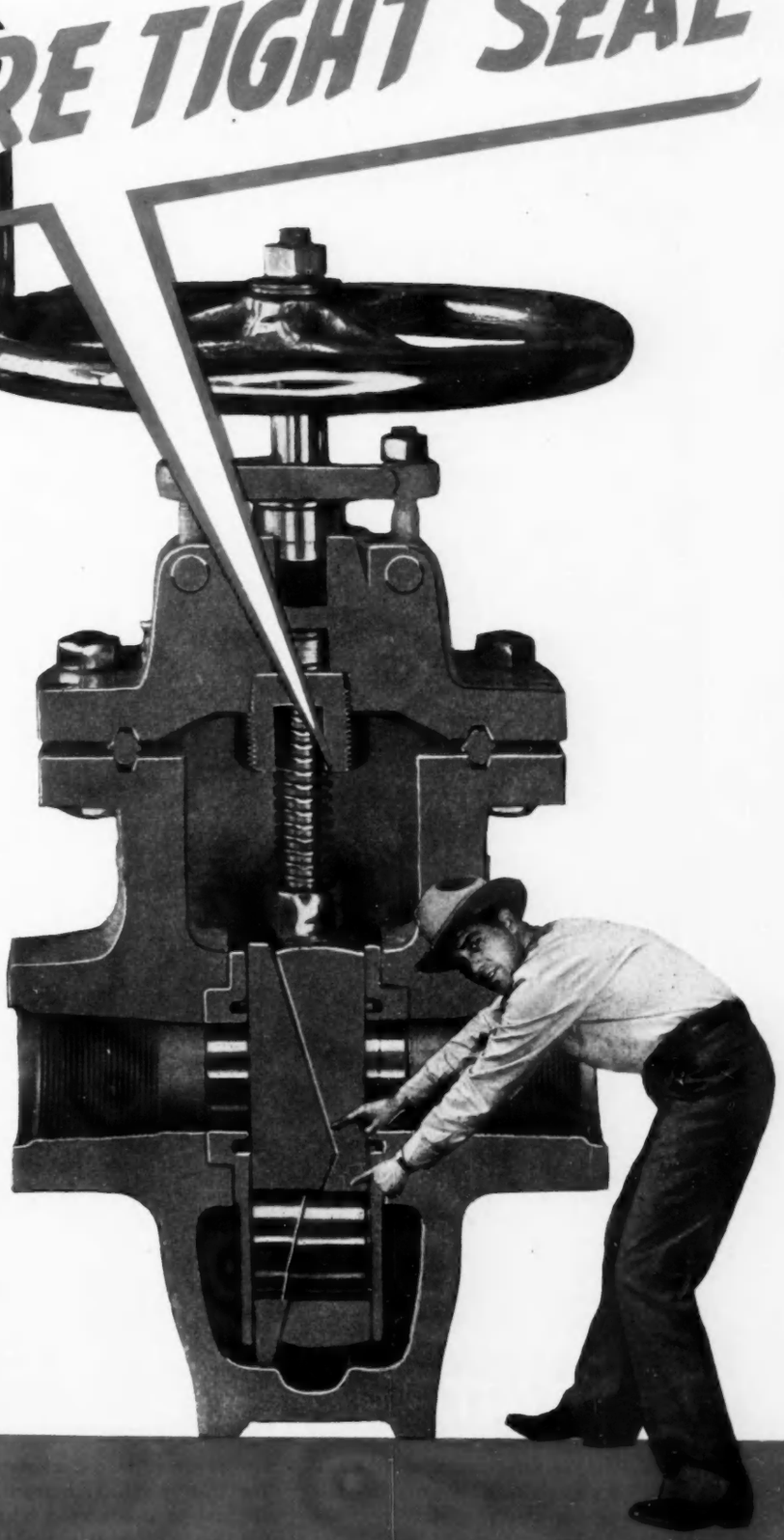

Close a W-K-M Gate Valve and the parallel gates with double wedge construction expand uniformly to effect a pressure-tight seal on both sides.

In open position the same mechanical feature seals between the valve body and the through-conduit. Pressure cannot enter the valve body, which serves as a reservoir for lubricant and accounts for the extraordinary ease with which the valve may be opened and closed.

Note in the accompanying cross-section drawing how the seat and faces are protected against pressure and abrasion. Note, also, that trash or cuttings cannot enter the valve body and thus prevent full closure. Should any sediment be carried down with the gate it is automatically flushed out when the valve is opened.

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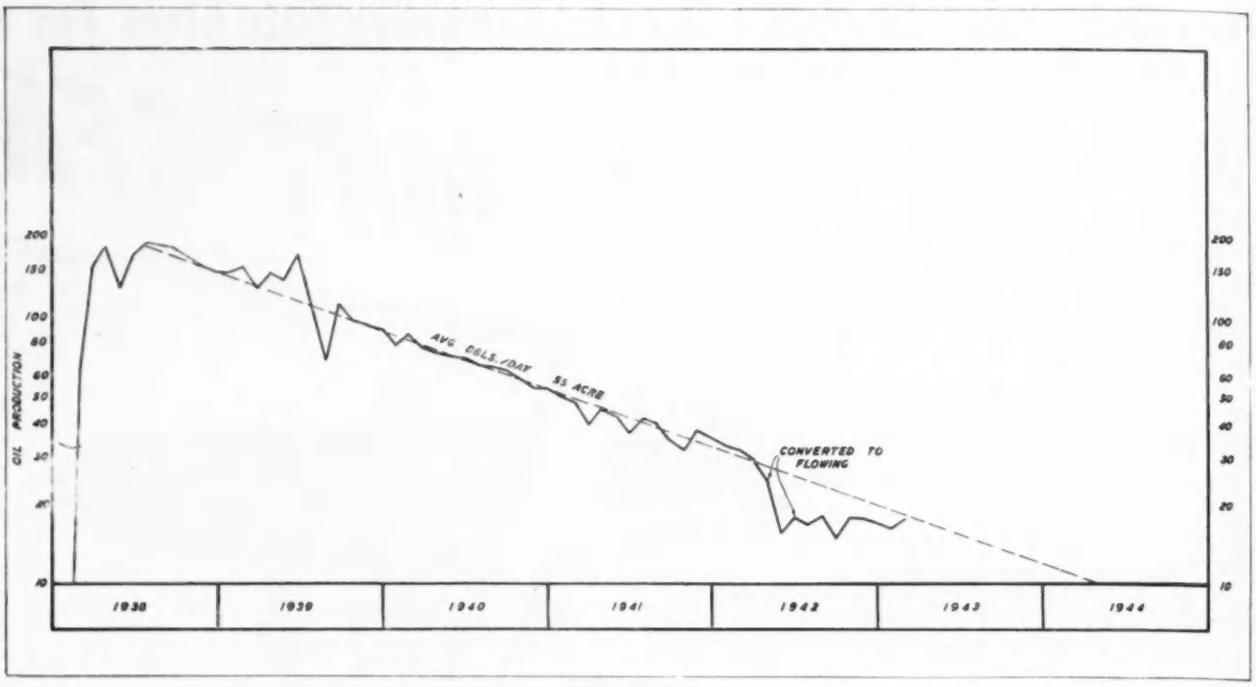

FIGURE 14

and more oil was recovered by the time water did appear.

What appears to be the answer though there are still some unknown factors associated with it, is the idea expressed by Figure 14. Flow patterns or stream lines are set up in the reservoir between intake and producer wells that are never changed if nothing is done to disturb the original pattern. Thus by alternately pressuring and relieving the pressure on the sand, those parts of the formation more remote from the main flow trend will become part of the active pattern of the flood system, and will, therefore, deliver their oil content to the oil well.

Disadvantages of Flowing

The chief argument against flowing is the back pressure imposed upon the sand. Operators who are thoroughly sold on the merits of flowing acknowledge the fact that back pressure on the pay does exist, but on the other hand instances are cited where old natural floods, operating at less than hydrostatic head for the depth of the sand and with low intake rates, permitting prolonged back pressure on the sand, have reduced residual saturation below that possible with the forced water drive. Some credence is now being given to the idea that limited withdrawal can recover more oil than a normal flood for the reason that it usually operates at lower intake rates. Certainly the criterion of a successful flowing flood is not that it operates at greater pressure than any other.

Another objection to flowing is the necessity for cementing the tubing in the hole. This can be refuted when full realization is given to the fact that nothing mechanical can possibly go wrong down in the hole. If cement-lined tubing is used, there should be no trouble from internal corrosion. If the hole below the packer should cave, an insert string of ½ or ¾-inch pipe can be used to wash the hole, or if mechanical failure of the pipe would necessitate replacement, a companion string of left-hand threadpipe can be used to fish the faulty pipe out down to the defect, after which the original may be replaced and made whole.

Flowing has never been tried successfully in the Mid-Continent area below a depth of 1000 feet. One reason is that unless the operator owns an entire pool or much of the acreage, the back pressure of flowing against a neighbor who pumps his wells at 1000 feet depth will be decidedly in favor of the pumping well. On a shoe-string or closed lens where differences of operating technique would not enter, depth should make no difference.

It is quite possible that the lower permeability ranges of 10 to 25 millidarcys will respond better to pumping than flowing, where time is important, to get the greatest advantage from the probable small pressure drop in tight sand.

Aside from these minor objections, the operators who consistently plan to flow their production from the beginning are of one accord when they say that they will never pump another drop of oil that they are not forced to by off-set difficulties.

REFERENCES

[1] American Petroleum Institute, "Secondary Recovery of Oil in the United States," November, 1942.

[2] Hardwicke, R. E., "Statutes Relating to Secondary Recovery Operations," American Petroleum Institute, "Secondary Recovery of Oil in the United States," Chapter 3, pp. 26-30, November, 1942.

[3] "Standard Procedure for Determining Permeability of Porous Media," American Petroleum Institute, Division of Production, Code No. 27, pp. 4-5, 1942.

[4] Botset, H. G., A. I. M. E., Petroleum Technology I, No. 4, November, 1939, T. P. 1111.

[5] Dunlap, E. N., A. I. M. E., Petroleum Development and Technology, 1939, Transactions, 215.

[6] Hassler, G. L., Rice, R. R., and Leeman, A. L., A. I. M. E., Transactions 118, 116, 1936.

[7] Horner, W. L., "Controlling and Predetermining Secondary Recovery," American Petroleum Institute, "Secondary Recovery of Oil in the United States," Chapter 5, p. 45, November, 1942.

[8] Leverett, M. C., A. I. M. E., Petroleum Technology III, No. 3, August, 1940.

[9] Leverett, M. C., and Lewis, W. B., A. I. M. E., Petroleum Technology III, No. 2, May, 1940. T. P. 1205.

[10] Muscat, Morris, "Flow of Homogeneous Fluids," McGraw-Hill Book Co., Inc., Chapter 9, 1937.

[11] Muscat, Morris, Ibid. p. 682.

[12] Muscat, Morris, Wyckoff, R. D., Botset, H. G., and Meres, H. W., A. I. M. E., Transactions 123, 69, 1937.

[13] Schellhardt, M. A., and Rawlins, E. L., U. S. Bureau of Mines, R. I., No. 3303, 1936.

[14] Torrey, Paul D., "The Economics of Secondary Recovery Operations," American Petroleum Institute, "Secondary Recovery of Oil in the United States," Chapter 2, pp. 16-25, Nov. 1942.

[15] Wyckoff, R. D., and Botset, H. G., Physics 7, 334, 1936.

[16] Earlougher, R. C., "Relationship Between Velocity, Oil Saturation, and Flooding Efficiency," A. I. M. E., Austin Meeting, October, 1942.

[17] Dickey, Parke A., and Bossler, Robert B., "Role of Connate Water in the Secondary Recovery of Oil," A. I. M. E., New York Meeting, February, 1943.

[18] Earlougher, R. C., "Water-flooding Efficiency Aided by Laboratory Flooding Tests," Oil Weekly, Vol. 105, No. 6, pp. 21-24, April 13, 1942.

[19] Benner, F. C., & Bartell, F. E., "The Effect of Polar Impurities upon Capillary and Surface Phenomena in Petroleum Production." American Petroleum Institute, Annual Meeting, San Francisco, Nov. 7, 1941.

[20] Preckshot, G. W., De Lisle, N. G., Cottrell, C. E., and Katz, D. L., "Asphaltic Substances in Crude Oils," A. I. M. E., T. P. 1514, September, 1942.

[21] Earlougher, R. C., "Investigation of Stripper Properties for Water-Flooding," Mines Magazine, Vol. XXXII, No. 10, pp. 496-500, October, 1942.

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By its very limitations, the submarine offers its crew opportunities to do damage to the enemy which are not given sailors on other types of vessels. Ninety per cent of the time during war our pig boats are looking for the enemy. Cruisers and destroyers, on the other hand, must often pass up the privilege of fighting in order to carry out some broad strategic objective; thus convoying, reconnaissance and scouting become a kind of boresome duty the submariner seldom knows.

Like the crews of Flying Fortresses and Liberators, pig boat men are trained hair-fine for team action. To an extent impossible to sailors on cruisers and destroyers, the security and efficiency of each one is involved with that of his fellows. No submarine skipper rates himself as more valuable than the humblest Seaman 2ndC on his ship. They are a proud lot, our pig boat men, but not boastful. They talk less of their exploits than the public likes. The brasshats apparently have decided to keep it that way. Certain critics, particularly Walter Lippman, believe the strategists in Washington have a long way to go before they will be as smart on undersea warfare as the Germans; this despite the fact that the sub is an American invention.

Maybe we aren't really smart in the way we run this branch of naval warfare, but there can be little criticism of how American subs fight. Prowling the dangerous waters of the western Pacific even to the coasts of Japan they are taking terrific toll of a wily and vicious enemy. One will get you five that when the victory score is at last compiled, the pig boats will be crowding the top.

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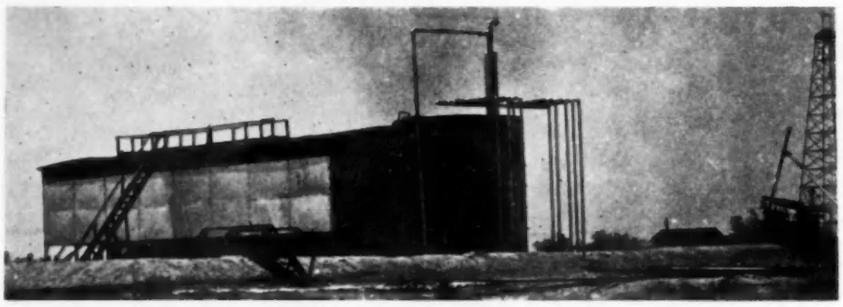
Wooden Sheds Cut Evaporation Losses



Light wooden enclosures, shielding tank top and sides from direct sun's rays, reduce evaporation losses and aid in maintaining initial specifications of crude as produced.

IN PRODUCING areas where the heat of the sun may have serious effect upon the characteristics of oil forced to remain, by pipeline restrictions, in the tank battery for some time, one operator has cut down on gravity losses of this nature by constructing sheds over the lease tank batteries. As the tanks likewise are built of wood, such sheds also protect the tanks from the effect of contraction and expansion of the material as the temperature varies from morning to night.

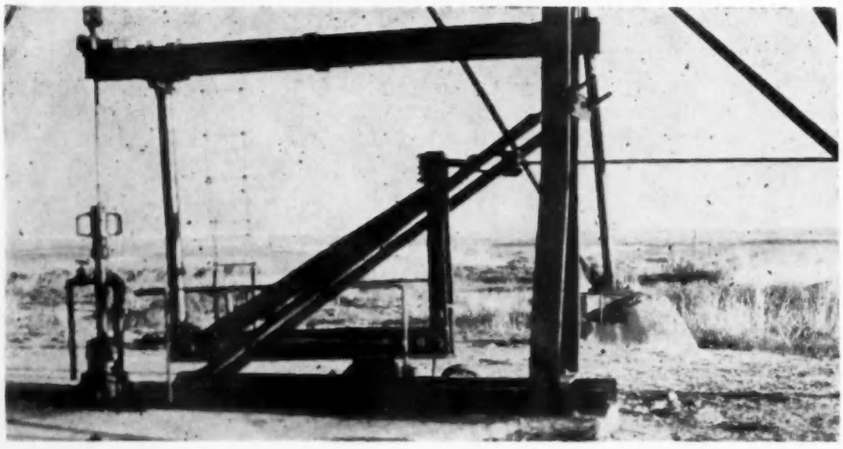
The tank sheds are fabricated of wood in the shape of rectangular framework completely surrounding the battery. The roofs are of corrugated metal sheeting, painted black. Some batteries are also walled in on all sides with metal sections. The tanks can be inspected from a cat-walk on top and through trap-doors built into the roof.

2. LEASE PROTECTION

Light Guard Closes Trap Below Pump Jack

PUMPING wells in pastures where livestock are kept are equipped with guards to prevent inquisitive animals from "sticking their necks out" and under the moving parts of the pumping equipment. The guards are made of sucker rods or other material available and installed in holes drilled, or burned in the base of the jacks.

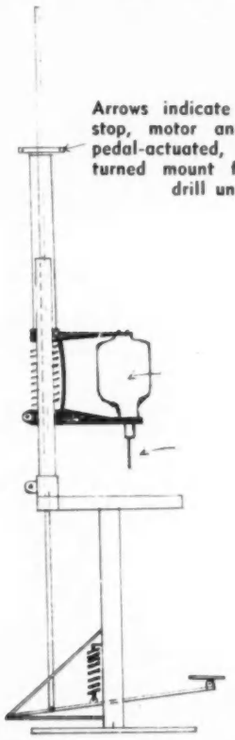
These guards are made high enough so that nothing can move beneath the jack and the base while the unit is in motion. Effective as a cattle guard, this attachment also protects an employe or pumper from possible injury while he is inspecting the operation of the jack while in motion.



Sucker-rod "fences," set into holes of the jack base, prevent possible entry below the rocking arm of the unit, even if it chances to stop in its most elevated position.

3. MAINTENANCE

Post Mount Speeds Drill-press Output



Arrows indicate adjustable stop, motor and drill of pedal-actuated, spring returned mount for electric drill unit.

POST mounting of the portable electric drill provides most stations with a drill press which will serve for bench work and which permits the use of the vise for holding the work. Such a mounting is an improvement over use of the drill as a hand tool, but usually leaves the operator with both hands occupied in running the drill, rather than manipulating the work.

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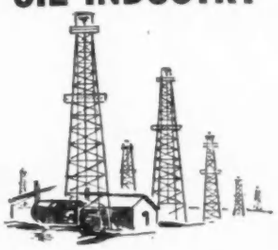

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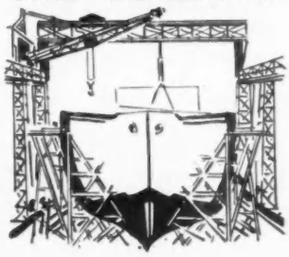

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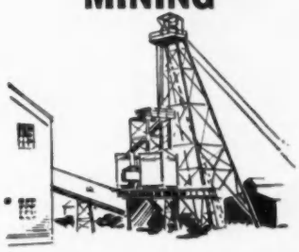

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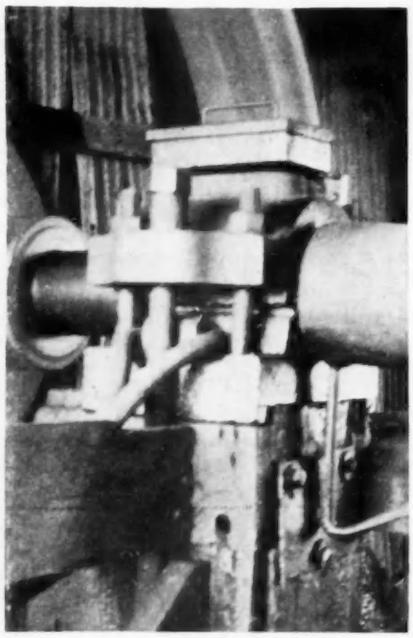
of the foot lever, with a switch under the end of the pedal farthest from the operator, the motor may be started or stopped simply by rocking the pedal to close the push-button switch or to release it. With this control the drill may be brought down into contact with the work when non-rotating, and the motor then started after the drill point is seen to be accurately spotted. Springs on pedal, foot lever and drill-carrying sleeve all tend to return the unit to the "clear" position, with sufficient foot pressure being required to insure accurate control.

4. LUBRICATION

Rig Front Bearings Fed by Box Oiler

THE open oil cups in old rig irons continually catch dust and drifting debris to the edetriment of the bearing and shaft. Waste packed in the channel is employed to retain the oil which gradually passes down into the bearing until surface tension is expended.

To overcome all of these difficulties on pumping wells operated with rig front units, a light weight sheet metal box is made which rests over the rig irons and completely covers the oil channel. It is provided with a cover equipped with a convenient handle for removing, and has large wicks inside, passing through pipe nipples well above the oil level, so that the oil is constantly fed to the bearing to lubricate the slow-moving band wheel shaft.



This box, set atop the bearing, retains oil soaked waste and insures longer feed to shaft.

5. OPERATION

Relief and Warning On Unit Mounting

Action of relief valve admits gas to whistle, sounding warning of high pressure.

ON FUEL lines where the pressure varies, a combination relief valve and warning whistle can be installed requiring only a relatively few pieces of equipment and fittings. This installation described is near a treating plant which is operated only when men are near-by.

A common rising-stem globe valve is reconditioned to become the relief valve by removing the threads from the stem and attaching a yoke to the top to carry a relief weight arm. This arm is bracketed to the relief line at one end and equipped with a hooked wire to retain the adjustable weights on the other. A short riser is connected to the outlet of this line topped by a small whistle which operates at low pressure.

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Materials Redistribution Plan No. 2 Issued by PAW

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Higher Crude Price Imperative Committees Tell Congress

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Appalachian Area May Get Relaxed Spacing Rules

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Wirt Franklin Takes New PAW Field Assistant Job

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By B. F. LINZ
Washington Correspondent

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LAUNCHING of PAW's materials redistribution program No. 2 was the outstanding event of an oil week in Washington in which investigations were the order of the day.

The long-awaited scheme to catalog and redistribute the excess materials of the industry was developed by PAW to ease the difficulties of operators in all branches and at the same time lessen the pressure upon new materials.

Under the plan, all operators desiring materials will have to "kick in" with any surplus equipment they may have and no operator will be permitted to secure new material if his needs can be filled from surplus stocks of other operators.

The program has the blessing of WPB, which has promised to keep its hands off the industry's surplus materials.

Two formal reports on House and Senate investigations of the oil situation and two oral reports to the house by members of the Naval Affairs subcommittee which recently visited the southwest have been released, all of them strongly supporting the industry's demand for a crude price increase and all expressing impatience of the delays and red tape which have encumbered the path of the operators.

Following two weeks of heavy movement, rail loadings of oil turned downward and for the week ended July 3 averaged only 960,362 barrels daily, a decline of 33,292 barrels from the preceding week, PAW reported.

PAW was unable to give the total rail movement because of the refusal of the War department to disclose shipments by box car although it had released that information the week before, leading PAW to revise rail-movement figures previously issued to add 67,090 barrels and bring the movement to another record at 1,060,744 barrels for the week ended June 26.

The decline over the month-end was described as normal and due to the fact that cars which carried record-breaking loads to the east had not yet all returned to their points of origin.

Stocks again moved upward, from 29.5 to 31.5 per cent of normal, the highest point reached, seasonal conditions considered, since March 6.

Redistribution Program Aims at Maximum Efficiency in Use of All Materials

PAW's "Materials Redistribution Program No. 2" got under way July 9 with issuance by the agency of regulations covering its operation and amendments to P-98-b and P-98-c bringing them into conformity with the plan.

Designed to locate and redistribute surplus materials within the industry so that all existing material will be used with maximum efficiency, the new program divides surplus equipment into two groups, one classified as critical materials, and itemized in Schedules A, B and C of the regulation. Surplus material not itemized in those schedules, is defined as any quantity not required or scheduled for use during the succeeding 90 days.

Briefly, surplus critical materials itemized in the three schedules are listed and defined as follows:

Schedule A (defined as surplus material if not required for use during next 90 days) carbon or alloy steel: line pipe, casing, tubing, sucker rods, wire rope.

Schedule B (surplus material is defined as any excess over 50 per cent of quantity of item actually put into use in 1942) carbon or alloy steel: condenser, boiler or still tubes; copper or copper base alloys: wire, tubing or pipe; valves, new reconditioned or rebuilt: two-inch or up if steel, 12-inch or up if case iron; check, gate, globe, plus, relief or safety valves.

Text of Redistribution Program No. 2, page 62.

Text of Amendment to P-98-b and P-98-c, page 65.

Schedule C (defined as surplus material if not been in service for 90 days and not scheduled for use in 30 days, or if not been in use for 180 days) compressors: 75 HP and up for production operators, 200 HP and up for refining and natural gasoline operators; electric motors and controls: 10 HP and up for all operators except 5 HP and up for marketing; Diesel engines: 150 HP and up, if sold new after December 31, 1937; gas and gasoline engines: multicylinder, 10 HP and up, if sold new after December 31, 1937; control instruments: natural gasoline and refining operators, industrial control instruments, including regulators and control valves, if sold new after December 31, 1937; heat exchangers: natural gasoline and refining operators, also complete shells; line pipe in place: four inches and over; motors: marketing operators, displacement type: pressure vessels and towers: natural gasoline and refining operators, 200 cubic feet content or more: meter type dispensing pump, motor driven: marketing operators; pumps: if sold new after December 31, 1937, steam or power driven centrifugal, rotary or horizontal reciprocating, where pump or power unit has new replacement cost of $600 or more; Oilwell pumping units: 10 HP or more, excluding standard rig front; steel tanks: marketing operators, 65 gallons or larger; steel tanks: production, natural gasoline, refining and transportation operators, 10,000 barrels or larger.

All Producers Affected

All operators in the industry, except certain defined classes of small marketers, will be required to join in the program and certify to the acceptance of its conditions. After July 31, no operator will be granted priorities assistance unless he is a participant in the program or is in the excepted group.

Marketers who operate less than five bulk plants and who do not own on control service station marketing equipment with a new replacement value of $300 or more at each of 25 or more retail outlets will not be required to join the program.

Participants will be required to file reports of surplus critical material on PAW Form MA-34 in triplicate with the PAW office for the district in which the material is located, the first report to be filed on or before July 31, and revised reports must be filed thereafter at least every 90 days, except under specified conditions which call for immediate reporting.

Operators applying for priorities assistance to secure materials will be advised by PAW of the location of available surplus materials of the type required, and unless the applicant notifies PAW within 15 days that, for valid reasons, he was unable to secure the surplus materials, the priorities application will become void.

The PAW program will supersede WPB's material redistribution programs, so far as oil operations are concerned.

Senate and House Committees Report Higher Crude Oil Prices Imperative

Increased crude oil prices as a stimulant to expanded exploration were urged upon Congress last week in reports of two independent committees of Senate and House, respectively, coupled with a warning that if the war continues for two years or more our supplies will not be adequate for all military and civilian needs.

The reports were submitted by Senator Francis Maloney of Connecticut, chairman of a special committee to investigate gasoline and fuel oil shortages, and Representative Clarence F. Lea of California, chairman of the oil subcommittee of the House Interstate and Foreign Commerce Committee.

Both committees also recommended that authority over petroleum and its products should be centralized in PAW.

Concerned primarily with the Eastern situation, the Senate committee made a number of specific recommendations for its improvement, urging that Mid-Western inventories be moved eastward to create more efficiency and more equitable distribution of available stocks, permitting larger rations for holders of A books, and the construction of a pipe line from New York City or Albany, N. Y., into New England.

Both reports dwelt at length on the necessity for a better price structure for crude, Maloney declaring an increase "would encourage the discovery and development of new reserves, the production of oil from new fields, and rehabilitation and secondary-recovery operations in oil fields."

"Although it would be impossible to minimize the importance of holding down price levels in general, a serious crude shortage would have greater inflationary tendencies than a moderate price increase at this time," he declared. "There is sufficient evidence that a price increase would stimulate exploratory activities. A possible compromise solution which should be given careful consideration would be the offering of a premium price for oil produced from newly discovered pools. This premium could be in the form of a subsidy or a tax reduction."

Sharply critical of the manner in which Eastern distribution has been handled, Maloney warned that "no greater gamble could be made than a wager on the exact future of the oil situation in the East.

Inventories Smaller

"Present indications are that inventories of all petroleum products this fall will be smaller than inventories a year ago," he said. "Present estimates of the amount of heating oil which will be available this fall are considerably lower than inventories at the same period last year. Moreover, inventories this year will include large quantities of material needed to fill the big pipe lines and therefore unavailable for use. * * *

"The over-all production of crude petroleum is now barely enough to satisfy essential requirements. In the absence of substantial new oil field discoveries we are likely to face a production shortage in 1944 should consumption continue at the high levels anticipated and if substantial relief does not come from use of foreign sources of supply or from the release of ships from the long hauls they are now making."

Lea was no less emphatic in his statement that "the importance of price as an incentive and requisite for needed production can scarcely be a matter of debate by men of practical experience. More important than any particular price or method of establishing price incentives to assure ample and sustained oil production, is the promptness and reliability of such incentives and that they are such as to be so accepted by the oil producing world," he said.

Price Index Low

"It is perhaps not a practical function of Congress to fix the appropriate price for oil, or petroleum products, or to make necessary price adjustments as our war needs may require," he added. "It is of great importance that such power, if assumed by the government, shall be so placed as to be exercised promptly, definitely, and by the agency best qualified for that function. The agency that determines the need of the product should also determine the appropriate price to induce its adequate supply."

Lea supported his recommendation with figures showing that, on the basis of 1926 when oil sold for $1.80 per barrel as against a current price of approximately $1.18, crude has an index figure of 61.2 against 97.5 for cost of living, 117 for farm products, 120.4 for bituminous coal and 170.4 for industrial labor.

Considerable attention was paid in the House report to the problem of future supply, the subcommittee pointing out that we must provide for continuance of the war for at least two years.

"America is even yet in the initial stages of the tremendous war program it will be able to assert in 1944," it was stated. "The big demand upon petroleum products is yet to come. Those plans call for a vast increase in our military planes; thousands of combat vehicles; and millions of tons of merchant shipping. The plans look to oil as the motive power for practically every movement of men, materials and equipment for our armed forces. The limit of our provision should be our ability to produce rather than an effort to confine production to possible minimum requirements.

"The easy resort to meet increased military demands is a cut-back on civilian supplies," the report commented. "That is the necessary method of meeting increased war demands when production supply is inadequate to supply both military and civilian needs. Such a cut-back limits our domestic fuel and power supply. The horses, mules, vehicles, and implements, which petroleum supplanted, have disappeared from the fields and highways of our country. America is on wheels. Ours is a petroleum economy. There is no way for an early return to the horse-and-buggy days. A cut-back on civilian supply does not go very far until it begins to break down domestic economy on which the success of the war effort is dependent. No argument is necessary to show the obvious need of securing and maintaining the greatest possible supply of petroleum products."

Suggests Foreign Sources

As one palliative for the shortage which is now apprehended, the subcommittee urged that more substantial war supplies be taken by the United Nations from the Persian Gulf area, the House being told that "the production in that area could be greatly increased by more wells, establishment of refineries and pipe lines to connect the supply with water transportation at the Mediterranean."

"The war is making a heavy demand upon our reserve supply of oil," Lea said. "A very high percentage of all the petroleum products now being used by the United Nations comes from the oil fields of America. The long-distance transportation to the battle lines is slow, expensive, takes a high toll of critical materials and proportionately subjects transportation to the hazards of war * * *

"In the judgment of the committee, the conservation of our own resources, as well as a more assured supply for military and civilian purposes, require that every practicable effort be made to increase these foreign supplies for war purposes. Such increase would decrease the demands upon our oil reserves, shorten our ship lines, reduce the war transportation hazards, increase the amount available for civilian use, and prolong the available supply of oil for America. Unquestionably, our military authorities are not unconscious of this situation.

"This committee believes that they and other agencies of our government should, within the limits of their authority, make every practicable effort to develop these known oil fields for the aid of the war cause of the United Nations and to the lasting benefit of our country.

"As measured by the life of a nation, our domestic supply of oil is brief. Beyond that, America must eventually share in the supplies of other lands. And then beyond that perhaps we must resort to substitute fuels such as can be gained from oil shales, coal, and alcohol."

Member Gives Preview Of "Investigation" Report

Jumping the gun on the House Naval Affairs subcommitte which has been engaged for several months in an investigation of the oil situation, of which he is a member, Representative L. Mendel Rivers of South Carolina told the House July 6 that the inquiry, in the course of which a trip was made to the Southwest producing states, developed that "if the oil producing areas of the United States were not hamstrung by governmental regulations, discouraged and demoralized by federal indecision and centralization, were given adequate pipe-line

transportation, were given materials and equipment with which to find and produce oil, were emancipated from bureaucratic bondage, we would not be faced today with the paradox of a petroleum famine in the land of plenty."

Rivers explained that the subcommittee would not have its report ready before Congress recessed for the summer and he was moved to make an oral report because of phases of the problem with which he thought the House should be immediately acquainted.

In all of the producing states which the group visited, he said, it found identical problems—sub-parity prices for crude; governmental red tape; failure of the manpower authority to accord proper recognition to the industry with respect to importance of personnel long classified as essential to the industry, and denial by WPB of priorities for adequate materials with which to drill new wells and find new reserves.

"We were advised by qualified witnesses, representing both the major and independent interests, that increases in the price ceilings on crude oil are essential to the stimulation of adidtional exploration and production," Rivers told the House. "Operators of so-called stripper wells testified that the increased overhead for pumping is causing abandonment of many of these wells which could produce oil for many years to come.

Red Tape

"The subject of governmental red tape was one upon which almost all our witnesses dwelt at considerable length—delay by the petroleum administrator's office in even considering applications for drilling permits; centralized control of the industry in Washington, with state regulatory bodies completely ignored and rendered impotent; adoption of nearly impractical and almost inflexible regulations not capable of being applied to all oil-producing areas, and lack of a clear understanding by PAW personnel of the problems of each of the respective oil regions of the country."

Rivers declared that he had been told privately of delays by PAW by operators who refused to testify publicly because of fears of reprisals; that officials of state regulatory bodies complained that their advices are being completely ignored in the administering of the program; that testimony had been received that spacing regulations could not be made to apply alike to all areas, and that it was only recently that the local Selective Service Boards were directed to consider men engaged in production of oil as essential to the war effort and eligible for deferment.

While Rivers' over-all review of the testimony secured in subcommittee hearings was considered accurate, his strictures of PAW may have been somewhat stronger than will be carried in the subcommittee report because of his feud with PAW over the proposed trans-American pipe line from Mississippi to the East Coast.

Referring to that project, he charged Deputy Administrator Davies has refused to permit its construction, "merely because he alleges that the reserves in Mississippi do not warrant such construction."

"This is an astounding position for Mr. Davies to take," he told the House. "His company, Standard Oil Company of California, has leased in excess of 133,000 acres of prospective oil lands in twelve counties in the same Mississippi which he claims will be dry in a very short period of time. What do you think his company is going to do with this land—grow corn and cotton?"

Rivers' report led to considerable debate on oil through the week, with Representative George J. Bates of Massachusetts, another member of the subcommittee, telling the House July 7 that the remedies for the Eastern situation lay in the development of new production and the construction of a third big pipe line to carry it to the Atlantic Seaboard.

Bates declared that the way to increase output is to adopt Ickes' recommendation for a 35-cent increase in crude price, pointing out that the subcommittee was informed by the refiners that this would mean less than one cent a gallon increase in gasoline or fuel oil.

"To us," he said, "it seems absurd and ridiculous that OPA or Prentiss Brown will leave this situation go by unchallenged and imperil this nation because of a lack of petroleum products that we need to keep our economy alive, to feed our military machine and to keep our people from freezing.

"You can get results immediately as was shown in California when the incentive was given by increasing the price of crude oil, in a tremendous increase in the amount of crude oil that was brought to the surface and is now available for civilians and for the military requirements.

"And along with the increase in price there must also be an easing off of critical materials; there must be more and better spacing allowed instead of the acreage being restricted to one well to every 40 acres; there must be a reduction in this requirement where it is clear that no destruction of efficiency in operation of the present wells will take place."

Also, Bates asserted, there must be better cooperation between the federal representatives and the members of the local regulatory bodies, and the selective service must recognize the industry as one of the most essential in supporting the war effort.

July Gasoline Demand Likely to Bring Further Stock Withdrawals, Bureau Warns

Gasoline consumption has failed to contract to the extent estimated, and continuation of the current trend will necessitate either a substantial gain in the yield from crude or further increases in crude runs as the only alternatives to too heavy withdrawals from gasoline stocks, it was warned by the Bureau of Mines in a belated forecast of demand for July.

The bureau estimated that 4,038,700 barrels of crude daily will be required to meet market demand, an increase of 237,200 barrels over the actual for July, 1942.

Based on actual figures for April and current data for May and part of June, the demand for domestic crude in the second quarter may approximate 3,980,000 barrels daily, or about 1.5 per cent above the forecast for the period, the bureau stated. Since little change in total crude stocks is indicated for the quarter, it was pointed out, this rate of demand almost coincides with the indicated rate of crude production, and a further sharp rise in crude demand expected in the third quarter may be met either by an increase in production or by withdrawals from storage.

"The total demands for gasoline and residual fuel oil appear to have been unexpectedly high in the second quarter, with an abnormal seasonal reduction in gasoline stocks and with no substantial increase in residual stocks," it was commented. While the war demands for gasoline have expanded rapidly, civilian consumption seems to be much greater than was anticipated. A continuation of the high rate of gasoline demand implies either a substantial gain in the yield from crude or further increases in crude runs rather than too heavy withdrawals from gasoline stocks.

"Crude runs to stills, which averaged only 3,617,000 barrels daily in the first quarter of 1943, rose to a daily average of 3,732,000 barrels in April, apparently remained close to that level in May, and seem to have risen sharply in June. Further increases will be essential if a substantial seasonal accumulation of fuel oil stocks is to be attained in the third quarter. Unless such stock accumulation materializes, the additional supplies required to meet peak winter demands will have to depend on further increases in refinery operations and the progressive improvement in interregional transportation facilities."

The report showed that daily crude production during the four weeks May 8 to June 5 was 3,973,300 barrels daily, with total runs to stills 3,702,000 barrels and with a daily increase of 107,000 barrels in crude stocks, indicating a demand for domestic crude of 3,866,000 barrels daily. This figure, however, reflects the reductions in crude movements caused by breaks in pipe lines due to flood conditions.

The total demand for motor fuel in July is estimated as 54,300,000 barrels, or six percent less than the actual in July, 1942, when sales were abnormally high prior to the inauguration of rationing in the eastern states.

Finished and unfinished gasoline stocks amounted to 89,482,000 barrels April 30, and API statistics indicate a decline of approximately 6,850,000 barrels during May, leaving them at some 82,650,000 barrels May 31. This was only 48.5 days' supply compared with 53.3 days' supply represented by the 94,681,000 barrels on hand on that date last year, it was pointed out. The bureau estimated a further reduction of 2,500,000 barrels in finished stocks in July, compared with a decrease of 8,423,000 barrels in July, 1942.

Benzol and indirect sales of natural gasoline are estimated at 1,700,000 barrels, making an indicated refinery production of 50,100,000 barrels, to be distributed among the several refining districts, as follows: East Coast, inland Texas, Texas Gulf Coast, Louisiana Gulf Coast and inland Louisiana-Arkansas, 23,090,000 barrels; Appalachian, 2,000,000 barrels; Indiana, Illinois, Kentucky, etc., 10,790,000 barrels; Oklahoma, 2,350,000 barrels; Kansas, 2,840,000 barrels; Rocky Mountain, 1,330,000 barrels, and California, 7,700,000 barrels.

Natural gasoline to be blended at refineries is placed at 4,990,000 barrels. The application of an estimated 38 per cent yield to the straight-run and cracked gasoline production of 45,110,000 barrels gives total crude runs of 118,700,000 barrels, or 3,829,000 barrels daily.

Crude oil for export and to be used as fuel, and losses, is estimated at 6,800,000 barrels, giving an estimated demand for domestic crude of 125,200,000 barrels, or 4,038,700 barrels daily, compared with 3,960,000 barrels daily estimated for June.

Refinery Quotas Increased In District 1 and 3

Refineries in District 1 and District 3 will be permitted to process larger quantities of oil in July than in June, while plants in District will operate on a smaller scale. PAW last week sent telegraphic advice that gave the allocation for individual refineries.

Crude oil run allocations in District 1 for July were increased a total of 10,000 barrels daily over June, despite the fact that they will "lose" oil to the Big Inch pipe line, which must be filled before operations can begin. Total daily quotas for the district were 660,000 barrels, of which approximately 106,000 barrels was assigned to plants in the Appalachian area. The additional crude will not provide more gasoline for civilians but, rather, increased output of war products, it was explained.

Allocations for District 2 were reduced 40,000 barrels daily to 1,125,000 barrels, which is the maximum that can be made available to plants in that area because of declining crude production. Restrictions on the output of gasoline were removed to meet farm demand.

District 3 received an increase of 63,000 barrels, which brought its daily total to 1,410,000 barrels.

Aviation Plants Put on Military "Must" Program

With military requirements for 100-octane aviation gasoline skyrocketing, WPB and PAW have made the latter's aviation-gasoline program one of the military "musts", and all plants that are scheduled for completion this year have been assigned AA-1 preference rating by WPB.

Recent field studies by WPB officials were said to have given weight to PAW's long maintained demand that the aviation gasoline program be expidited to the limit, and there recently has been a change of attitude on the board which has been expressed in the form of special directives even stronger than high priorities.

Navy Defends Elk Hills Contract With Standard; Investigation to be Resumed

The Elk Hills contract got its last play for the summer when, as Congress prepared to recess until Mid-September, the Navy filed a lengthy statement with the House Public Lands Committee, defending the agreement and Standard Oil Company and showing how, in its opinion, the lifting of 27,500,000 barrels of oil over a period of five years would conserve more than that amount which, without the contract, the company also might have taken out of its own lands in a development program which would have drained the Navy's reserves.

The Navy and Assistant Attorney General Littell, whose opinion that the contract was illegal, led to its abrogation, traded insults, the latter charging the agreement to be a "shell game" and the Navy intimating that the Justice Department official was a poor player.

Emphasizing that the agreement was made in good faith, the Navy said its officials believed the 1938 law expressly authorized the contract, under which Standard voluntarily was giving up "millions of dollars" of profits it could have made through exploitation of its properties in the reserve.

That the contract was in fact one of conservation, it was declared, was evidenced by the fact that it limited production to 27,500,000 barrels over a period of five years, in which it was estimated the company could take some 62,500,000 barrels of oil from its own wells, of which between 12,000,000 and 15,000,000 barrels would be drained from Navy lands.

"Since Standard agrees to limit the production during such period to 27,500,000 barrels, and to produce after such period only enough to cover its costs, the conclusion is inescapable that Standard by entering into this contract with Navy is giving up millions of dollars of profit that it would otherwise make in the operation of its own properties," the committee was told.

The department denied that the effect of permitting Standard to hold the oil it took out during the five-year period would be to advance the company more than $12,000,000, explaining that "if the Navy should follow the recommendation set out in the Assistant Attorney General's memorandum that the Navy proceed to condemn this property, the loss of interest on the cash paid for the property in condemnation proceedings would be many times greater than the loss of interest on Navy's share of the net production during the five-year period."

"The Navy's first concern," it declared, "is to be ready to meet such an emergency. It cannot foresee the distant future with any accuracy. It does not want to be confronted with the necessity of building additional storage tanks, pipelines and other facilities to get its oil to the markets and converted into usable products. Readiness is Navy's prime concern. That means it must have an assured and perpetual outlet for its oil.

"Standard assumed this responsibility, and reasonably desired a reciprocal obligation on Navy to sell, so that it would enjoy any benefits from its perpetual duty to take should the time come to produce. After standing ready to take whatever the amount, for what may be a very long period, it does not seem inequitable to demand that the oil be sold to Standard instead of some one else who has assumed no such obligations to the Navy."

The department also denied an assertion of Assistant Attorney General Norman Littell that water encroachment had made uneconomical development of a section of Standard's land which had been included in computations.

"Actually," it maintained, "this tract is potentially one of the most prolific areas in the eastern end of the field. The area remained undrilled because it was protected by other adjoining Standard acreage, making it unnecessary for Standard to drill offset wells."

The Navy said it was "merely trying to follow the President's suggestion made after the cash negotiations had admittedly failed" when it signed the contract.

"Navy regarded the transaction as authorized under the Act of 1928," it said, as a purchase and, if that could not be sustained due to the California property law, then as a "unit operation" contract under another section of the act.

"The Secretary of the Navy asked the President under date of February 23, 1942, to release certain funds to drill test wells to develop additional data relating to the value of the lands in the reserve," it was explained. "The President replied by letter on March 21, 1942, stating that he doubted the advisability of drilling the proposed test wells and authorized the Secretary to proceed with negotiations toward the purchase, if possible, of all lands lying within the geologic structure in which Naval Petroleum Reserve No. 1 is located."

The Navy and Littell traded blows, the former saying of him that "In his anxious haste to save the Navy from being victimized by a shell game, he has evidently forgotten which shell the pea was under when he last saw it," while on July 8, in a reply to the statement, the Assistant Attorney General described the Navy's defense as a "major deception" and charged the department had ignored the "logical conclusion of the President" that condemnation proceedings should be initiated.

"Why this tenderness about condemning Standard's property when the Navy department itself has condemned the homes and business of thousands of private citizens throughout the land?" Littell asked.

In a memorandum accompanying the statement, Adlai Stevenson, Special Assistant to the Secretary of the Navy, requested the department be allowed to present its case before the committee. Chairman Peterson said that after the recess he would request the House Rules committee to grant his committee subpoena powers to continue its investigation.

Eastern Area Spacing Rules To Be Further Relaxed

In the works at PAW at the close of the week was an order relaxing the spacing regulations for the Appalachian area so as to permit building 1200 instead of 1000 feet in areas subject to the five-acre rule, and permitting the installation of pumping or other artificial lifting equipment in wells to a depth of 2500 feet to which five productive acres can be attributed.

The order also will expand the Appalachian area to take that portion of Ohio including and east of Lorain, Ashland, Richmond, Knox, Licking, Fairfield, Hocking, Vinton, Jackson and Lawrence Counties, and that part of Kentucky including and east of Lewis, Fleming, Bath, Minefee, Powell, Estill, Jackson, Laurel and Whitley Counties.

The order will eliminate all provisions regarding secondary recovery in New York and Pennsylvania since secondary recovery operations are now permitted everywhere.

More Petroleum Products Put on Priority List

Naphtha, petroleum insecticide bases, petroleum wax and petrolatum have been added to the list of products for which preference ratings may be used in obtaining supplies.

Under an order issued by WPB, designed to prevent overlapping and conflicts with PAW, the former will issue no preferences ratings for the procurement of oil products, but such matters will be handled through the oil agency.

An amended WPB Preference Rating Exclusion Order M. 201 issued July 9 also changes the definition of lubricating oil to include all oil which is used for or is suitable for lubricating, including cutting, drawing, processing, soluble transformer and white oils, which do not contain in excess of 50 per cent by weight of additives or compounds.

Wirt Franklin Made Special PAW Assistant

Wirt Franklin, district director of production and director in charge of District 2, has been picked for a highly important post in PAW as a special field assistant attached to the office of the deputy administrator, to work with operators with the purpose of increasing crude production.

The new position was declared by Davies to be of utmost importance in view of the imperative necessity of increasing output by every means possible. Franklin will have his headquarters in Washington, but is expected to spend the greater part of his time in the field with the producers and producing companies.

"The Nation is threatened with an imminent shortage of crude oil production, and it is of paramount importance that PAW further expand its activities in such a manner as to bring about, so far as lies within its power, increased search for oil, the installation of greatly expanded secondary recovery operations, and the further encouragement of conservation practices," Davies said. "We will need every possible barrel of oil which we can find and extract from known deposits.

"We are particularly fortunate in having on the staff of PAW a man whose lifetime of experience in the oil industry has so well prepared him to aid us in this important task. While the vacancy which he leaves as director in charge of District 2 will be difficult to the Nation's production position is such that we have asked Mr. Franklin to apply his unique training and experience to a problem national rather than local in scope."

Florida Solon Blames Ickes for It All

Charges that Harold L. Ickes, as Public Works Administrator and later as Petroleum Administrator, has personally opposed the construction of the Florida barge canal over a period of eight years have been filed with President Roosevelt by Representative Joe Hendricks of Florida.

In a letter to the President, Hendricks pointed out that White House approval of the project had been given in 1935 and over $5,000,000 spent on the beginning of its construction, the President later recommending to Congress that the canal be completed.

"Unhappily," he said, "this policy was frustrated and defeated by Mr. Ickes.

"It is an officially recorded fact that but for the action of this Cabinet officer, who is now also Petroleum Administrator for War, our Gulf and Atlantic intracoastal waterways would have been long since connected by this channel across Northern Florida, and we should now have no petroleum problem in the Eastern United States. The water route between the Mississippi Valley area and the Atlantic Seaboard could not have been severed by the enemy, and there would have been no death roll of merchant crews and ships destroyed in attempting to do by sea what could have been safely done by barges via the intracoastal waterway through the Florida canal.

"Mr. Ickes' direct responsibility for this, coupled with his continued efforts to prevent relief by means of this project, and his general failure to arrest further deterioration of our petroleum situation, have raised the question as to the usefulness of his continued participation in the government."

Accompanying his complaint, Hendricks submitted copies of a letter he had written Ickes, containing substantially the same charges, and a memorandum contending that the canal would be more economical and efficient than the big-inch, which he asserted will average only 250,000 barrels daily instead of the 300,000 barrels claimed by PAW.

In his letter to Ickes, the Congressman charged that PAW is staffed by men from the major oil companies which opposed the canal.

"A dispassionate examination of the whole record makes it impossible to escape the conclusion that for more than eight years you have left no stone unturned to prevent this project from coming into being and that you are responsible for the absence of through barge transportation and the petroleum situation we face today," he said.

"I think it is almost universally acknowledged, by friend and foe alike, that failure to provide this connecting channel across north Florida was one of the most tragic omissions and errors in policy in the history of this nation, and has resulted in detriment to the public welfare and security to a greater extent than the Pearl Harbor disaster," he concluded. "More men have died, more ships and cargoes have been lost, more suffering has been caused, and more detriment to our ultimate war effort has resulted from this failure to see to our vital transport than followed in the train of Pearl Harbor."

President Roosevelt is still in favor of the canal, it was disclosed later in the week with publication of a letter to that effect to Representative Joseph J. Mansfield, chairman of the House Committee on Rivers and Harbors.

The President told Mansfield that it was his intention to continue the large-scale dredging operations which have been going on along the existing sections of the intracoastal waterway, but added that "as yet, it has not been feasible to undertake work on sections of the waterway not now in existence, primarily because of shortages of manpower, materials and equipment.

"Detailed plans and specifications for the Florida barge canal will be prepared," he said, "so that its construction can proceed without delay as soon as these shortages are overcome.

"While I cannot foretell how soon that will be, it is possible that the situation with respect to these shortages will change sufficiently to permit an early dredging of the sea-level sections of the canal, and I am, accordingly, asking the Director of the Bureau of the Budget and the Chief of Engineers to keep me advised of any changes of conditions which would justify the inauguration of this work."

Additional Restrictions on Heat Exchangers

Additional types of heat exchangers were brought under strict control by the War Production Board July 9 in an action designed to channel critical types and sizes into essential war industry and military use.

A revised Order L-172 broadens the coverage to include additional types and sizes, but makes a distinction between the most critical types and others by requiring specific authorization by WPB before an order can be placed with a manufacturer for certain heat exchangers.

Applications for such authorization (to purchase Group I exchangers) must be made on Form WPB-1475 (formerly PD-615). In the case of all other heat exchangers (Group II) specific authorization is not required prior to the placement of orders. But the orders must bear a preference rating of AA-5 or higher.

The order also:

1. Removes from the terms of L-172 heat exchangers being produced by a manufacturer as an integral part of other machinery, the construction of which has been approved by WPB through priority action or through other WPB orders. This avoids unnecessary duplication in filing applications and forms.

2. Provides a simple procedure for rejection of orders which cannot be accepted by the manufacturer because of the delivery dates required.

PAW Materials Redistribution Program No. 2

As Issued July 9, 1943

Title 32—National Defense

Chapter XIII—Petroleum Administration for War

Part 1575 — Petroleum Industry
PAW Materials Redistribution Program No. 2

The fulfillment of the requirements for the defense of the United States has created a shortage of materials necessary for the production of petroleum for defense, for private account, and for export; and the following program is deemed necessary in the public interest, to promote the national defense, and to provide adequate supplies of petroleum for military and other essential purposes by making possible the fullest utilization of existing materials in the petroleum industry:

Section 1575.2 (PAW Materials Redistribution Program No. 2)

(a) Purpose

The purpose of this Program is to effect a redistribution of certain critical materials among petroleum operators, so as to assure maximum efficient use of these materials and continued effective operation of the petroleum industry. In addition this Program is designed as a method for determining the extent to which overall surpluses of material exist in the petroleum industry and are available for other uses in this country's war program. These purposes are to be accomplished through the establishment of uniform procedures for the reporting and sale or exchange of surplus stocks owned or controlled by petroleum industry operators.

The issuance of this Program supersedes the previously operative "Tubular Goods Program" and establishes uniform standards for the recording and redistribution of those items of material essential to the war program which from time to time may become critical.

(b) Definitions

(1) "Operator" means any person to the extent that he is engaged in the petroleum industry.

(2) "Petroleum Industry" means any operation directly incident to:

(i) The discovery, development or depletion of petroleum pools (production);

(ii) The extraction or recovery of natural gasoline and associated hydrocarbons (natural gasoline production);

(iii) The transportation, movement, loading or unloading of petroleum other than natural gas (transportation);

(iv) The processing, refining or compounding of finished or unfinished petroleum products (refining);

(v) The distribution or dispensing of petroleum products (other than natural gas) and the storing of petroleum products incident thereto (marketing):

And shall include for each of the above listed branches of the industry, to the extent applicable therein, the investigation into more efficient or more effective methods of conducting petroleum industry operations by means of research or technical laboratories.

(3) "Material" means any commodity, equipment, accessory, part, assembly, or product of any kind.

(4) "Surplus Material" means with respect to each operator that quantity of any item of material, usable for purpose other than scrap, in the operator's possession, or under his control which is determined to be surplus critical material in accordance with Schedules "A", "B", or "C"; or which (with respect to any material not identified as critical material) exceeds the quantity required or scheduled for use during the succeeding 90 days.

(5) "Critical Material" means the material identified as critical on Schedules "A", "B", or "C" of this program.

(c) Participation in the Redistribution Program

(1) Required Participation

Every operator (except marketing operators who neither operate five or more bulk plants nor own or control marketing equipment with a new replacement cost of $300 or more at each of 25 or more retail outlets) who after July 31, 1943, acquires any material through the use of priorities assistance, for use in the United States, its territories or possessions must participate in the Redistribution Program.

(2) Voluntary Participation

Any operator, domestic or foreign (although not a required participant), and any supplier may participate in this Program by following the provisions of the Redistribution Program as if he were a required participant.

(3) Classes of Participation

At any time the Petroleum Administration for War may include or exclude any operator or class of operators from required participation in the Redistribution Program.

(4) Required Certification

At the time of filing this first report, or in the case of a required participant having no surplus material to report, on or before July 31, 1943, each operator shall file with the District Office for each District in which he operates a certification in triplicate in substantially the following form:

This is to certify that I am acquainted with the provisions of PAW Materials Redistribution Program No. 2 and have filed and will file all reports required thereunder.

Name of Required Participant
Address
Date
Branch or Branches of Industry in which Operations are Conducted in District

(d) Material Covered by the Redistribution Program

(1) The Redistribution Program covers all critical material which exists in the petroleum industry.

(2) Only surplus critical material must be reported. However, any item of critical material may be reported when a substantial quantity of such item exists at any location. In the event that critical material is reported, whether or not such material is surplus material, it shall be considered as surplus critical material for the purpose of this Redistribution Program.

(3) Where surplus critical material is jointly owned or controlled by two or more operators, such material shall be included in the program and reports as to such material shall be made by the operating owner.

(e) Surplus Critical Material Reporting

(1) Initial Inventory

As soon as possible, every required participant shall make surveys of his critical material to determine what surplus critical material he has in his possession or subject to his control. A separate survey shall be conducted for each PAW District.

(2) Critical Material to be Reported

Surplus critical material must be listed on PAW Form No. MA-3-A, and reported on this form to the District Office of the Petroleum Administration for War for the District in which the surplus critical material is located. The first report shall be made on or before July 31, 1943.

The operator must fill out a separate PAW Form No. MA-3-A for each item or group of identical items which are owned or controlled by a required participant and are located at one place. However, where the required participant has like items of material located at two or more places in the PAW District, he may submit one report for all like items and list the identifying locations of the critical material on the back of the form. Three copies of Form No. MA-3-A shall be sent to the appropriate District Office and one shall be retained by the operator to be maintained as an inventory record so established that he can conveniently answer inquiries concerning his surplus critical material.

(3) Maintaining Current Records

(i) Adjustment of Schedules

In the event that an item of critical material is added to or withdrawn by the Petroleum Administration for War from Schedule "A", "B", or "C", an appropriate adjustment is required. Where an item is added, a required participant must immediately conduct a survey (in the manner prescribed in subparagraph (1) above) of that item to determine whether or not with respect to that item he has in his possession or subject to his control any surplus critical material. If the survey reveals the existence of surplus critical material, he shall immediately notify the appropriate District Office on PAW Form No. MA-3-A in accordance with subparagraph (2) above. Where an item of critical material is withdrawn from Schedules "A", "B", and "C", the required participant need not conduct periodic surveys of that item as described in (ii) below, nor will that item continue to be considered as subject to the requirements of the Redistribution Program which are applicable to critical material.

(ii) Periodic Reports

In order that the records of the Petroleum Administrator for War may be maintained on a current basis the following interim reporting procedure should be used:

(a) When any item of critical material is acquired by a required participant in an amount which will result in surplus critical material for that item, he will immediately notify the appropriate District Office of this fact on PAW Form No. MA-3-A, in accordance with subparagraph (2) above.

(b) When any item of critical material is used or disposed of by a required participant and as a result there no longer exists surplus critical material with respect to that item, he will immediately notify the appropriate District Office of this fact on PAW Form No. MA-3-A in accordance with subparagraph (2) above.

(c) When the quantity of any item of surplus critical material reported by a required participant is altered in an amount greater than 25% of the total reported surplus of that item, the required participant will immediately notify the appropriate District Office of this fact on PAW Form No. MA-3-A in accordance with subparagraph (2) above.

In any event, a required participant will review his stock position and list or report any alterations in his surplus critical material inventory position at least once every 90 days. The first of these reviews and reports will be completed and submitted to the appropriate District Office on PAW Form No. MA-3-A, in accordance with subparagraph (2) (above) on or before October 31, 1943.

(iii) Current Records

The inventory and inventory records of any required participant may be reviewed by representatives of the Petroleum Administration for War at any time to determine conformity with the requirements of this Redistribution Program.

(f) Use of Inventory Records to Obtain Critical Materials

(1) Action to be Taken by an Operator Requiring Critical Material

(i) Whenever a required participant requires the delivery of any critical material, the operator must, in an effort to locate the material, first consult his own inventory records for the District in which the critical material is to be used.

(ii) When, under Preference Rating Order P-98-b or other applicable order, the delivery order or application form must be approved or an authorization granted prior to the use of priorities assistance, an operator before submitting the order or using authorized priorities assistance (other than MRO assistance for which an approved delivery order is necessary) should inquire of the appropriate District Office as to whether or not the critical material for which priorities assistance has been requested is available in the stocks of another operator.

(2) Notification of Existence of Surplus Critical Material

Before processing a request for priorities assistance, a check will be made by the Petroleum Administration for War of its inventory records to determine whether or not the particular item or items of critical material are otherwise available as surplus material in the hands of other operators. In the event that a determination is made that this is the case, the applicant for priorities assistance will be informed of this fact by letter, or collect telephone, or collect telegram, depending upon the expressed preference of the operator and the urgency. Letter notification will be on PAW Form No. MA-3-C entitled "Notification of Sources of Surplus Critical Material."

(3) Negotiation for Sale or Transfer of Critical Material

Upon receipt of a notification of possible available supplies of critical material, the operator requiring the critical material will communicate with the operators indicated as possessing possible supplies and negotiate with them for the sale or transfer of the material. If the operator cannot obtain the critical material from any of the indicated sources, he will so notify the Petroleum Administration for War on a copy of PAW Form No. NA-3-C, entitled "Notification of Sources of Surplus Critical Material," giving a full explanation of the reasons why the purchase or transfer could not be consummated. A supply of these forms may be obtained from any Petroleum Administration for War District Office for use as replies when notification is made by telephone or telegraph.

Where inquiry is made by transmitting a copy of the delivery order or an application for priorities assistance, and the Petroleum Administration for War determines that the required critical material is listed as surplus stock by other operators and so notifies the operator on PAW Form No. MA-3-C, the purchase order or application will be held in abeyance for 15 days from the date of notification to the operator of the possible sources of

the critical material. If the operator is unsuccessful in obtaining the critical material from the suggested sources, the original request for priorities assistance will be processed where information to this effect is received from the operator within 15 days of the date of notification. Unless the Petroleum Administration for War is so notified within the 15 days, a new copy of the delivery order or application for priorities assistance must be submitted if priorities assistance is necessary.

Before transmitting an application for priorities assistance which under Order P-98-b must be sent directly to Washington, the required participant shall unless emergency conditions prevent, request information of the appropriate District Office as to available supplies of surplus critical material located in the District and shall attempt to obtain such material without the use of priorities assistance. If material is not available the operator shall so notify the District Office and place upon his application to Washington, a statement in substantially the following form:

"Cleared with Surplus Critical Material Unit, Materials Division, Petroleum Administration for War District No. —."

In the event that no contact is made with the District Office, the Petroleum Administration for War in Washington will determine from its inventory records whether or not there exists surplus material in hands of other operators in the District and based upon the determination will, if appropriate, return to the operator PAW Form No. MA-3-C for processing by the operator in the manner specified above.

(g) Price Negotiation.

The Petroleum Administration for War will not negotiate prices in any sales or transfers effected under this Redistribution Program nor in any way act as a collecting agency for any seller or transferer. Although the price charged should not exceed the present new replacement cost of the critical material at its present location or the applicable established maximum price, if any, of the Office of Price Administration, the Petroleum Administration for War will not check any price against such limits. The negotiation of prices and the conformity of prices with governmental regulations is the responsibility of the operator.

(h) Forms.

Sample copies of all forms referred to in this Program and instructions for their use will be attached to the Materials Redistribution Program as distributed. Additional copies of the forms for use in carrying out the provisions of this Program may be obtained from any District Office of the Petroleum Administration for War.

(i) Sales and Transfers Within the Petroleum Industry.

The terms and provisions of Preference Rating Order P-98-c, as amended, permit sales and transfers of material within an operator's company or between operators, and in addition permit sales or transfers by an operator to a supplier for direct sale or transfer by the supplier to another operator. However, no material may be delivered to any operator by either an operator or a supplier (where the material is ultimately to be used in the United States, its territories or possessions, or the Dominion of Canada) in a quantity "which if accepted by the operator would result in surplus material for the operator." Likewise, no operator may submit a delivery order, purchase order or contract, effect a sale or transfer of material otherwise authorized under Preference Rating Order P-98-c, or use priorities assistance, to obtain delivery of material for ultimate use in the United States, its territories or possessions, or the Dominion of Canada in a quantity which if accepted by the operator would result in surplus material.

These provisions, making possible the full utilization of this Materials Redistribution Program, also limit the quantities of material which may be accepted; and it should be the direct concern of every operator to acquaint himself fully with the provisions of the P-98-c Order in working under the Materials Redistribution Program.

(j) Appeals.

Any operator who is subject to any requirement of any regulation, direction, or other action under this Redistribution Program may appeal for relief by filing a letter in triplicate with the District Director of Materials, Petroleum Administration for War, at the District Office for the District in which relief is sought, Ref: MRP-2, setting forth the pertinent facts, and the reasons why the operator considers that he is entitled to relief.

(E.O. 9276, 7 F.R. 10091; E.O. 9125, 7 F.R. 2719; sec. 2(a), Pub. Law 671, 76th Cong., as amended by Pub. Laws 89 and 507, 77th Cong.)

(This Program has been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942).

Issued this 9th day of July, 1943.

Petroleum Administrator for War.

Schedule "A"

DETERMINATION OF SURPLUS CRITICAL MATERIAL FOR THIS SCHEDULE

To determine the surplus critical material for Schedule A: Subtract from the total quantity of any item of critical material (of a type identified on this Schedule), that quantity by item which is required or scheduled for use during the succeeding 90 days.

CRITICAL MATERIAL USED IN:

Production (Oil or Gas)	Natural Gasoline Production	Refining	Transportation	Marketing
Carbon and Alloy Steel	**Carbon and Alloy Steel**	**Carbon and Alloy Steel**	**Carbon and Alloy Steel**	
Tubular Goods (oil country) casing tubing, 2″ and up drill pipe				
Line Pipe, 2″ and up	Line Pipe, 2″ and up	Line Pipe, 2″ and up	Line Pipe, 2″ and up	
Wire Rope				
API Steel Sucker Rods				

Schedule "B"

DETERMINATION OF SURPLUS CRITICAL MATERIAL FOR THIS SCHEDULE

To determine surplus critical material for Schedule B: Subtract from the total quantity of any item of critical material (of a type identified on this Schedule), one-half of the quantity by item actually installed or put into service (use) in 1942.

CRITICAL MATERIAL USED IN:

Production (Oil or Gas)	Natural Gasoline Production	Refining	Transportation	Marketing
	Carbon and Alloy Steel	**Carbon and Alloy Steel**		
	Condenser Tubes	Condenser Tubes Boiler Tubes Still Tubes		
Copper	**Copper**	**Copper**		
Wire (wire mill copper products)	Wire (wire mill copper products) Pipe and Tubing (including tubes)	Wire (wire mill copper products) Pipe and Tubing (including tubes)		
	Copper Base Alloys	**Copper Base Alloys**		
	Pipe and Tubing (including tubes)	Pipe and Tubing (including tubes)		
Valves [1]	**Valves** [1]	**Valves** [1]	**Valves** [1]	
(check, gate, globe, plug, relief, safety) Steel, 2″ and up Cast Iron, 12″ and up	(check, gate, globe, plug, relief, safety) Steel 2″ and up Cast Iron, 12″ and up	(check, gate, globe, plug, relief, safety) Steel, 2″ and up Cast Iron, 12″ and up	(check, gate, globe, plug, relief, safety) Steel, 2″ and up Cast Iron, 12″ and up	

Footnote[1] explained at bottom of Schedule C on following page.

Schedule "C"

DETERMINATION OF SURPLUS CRITICAL MATERIAL FOR THIS SCHEDULE

To determine surplus critical material for Schedule C: Total by item all critical material whether or not installed (of a type identified in this Schedule): (a) which has not been in productive service during the past 90 days and is not required or scheduled for such service during the succeeding 30 days; or (b) which has not been in productive service during the past 180 days.

CRITICAL MATERIAL USED IN:

Production (Oil or Gas)	Natural Gasoline Production	Refining	Transportation	Marketing
Compressors [2]	**Compressors** [2]	**Compressors** [2]		**Compressors** [2]
75 HP or more (including direct driven)	200 HP or more (direct driven only)	200 HP or more (direct driven only)		7½ HP or less (complete with storage tank)
	Control Instruments [1 2]	**Control Instruments** [1 2]		
	Industrial (including regulators and control valves)	Industrial (including regulators and control valves)		
Electric Motors	**Electric Motors**	**Electric Motors**	**Electric Motors**	**Electric Motors**
10 HP or more	10 HP or more	10 HP or more	10 HP or more	5 HP or more
Electric Motor Controls	**Electric Motor Controls**	**Electric Motor Controls**	**Electric Motor Controls**	**Electric Motor Controls**
10 HP or more	10 HP or more	10 HP or more	10 HP or more	5 HP or more
Engines [2]	**Engines** [2]		**Engines** [2]	
Multi-cylinder Gas and Gasoline 10 HP or more Diesel 150 HP or more	Multi-cylinder Gas and Gasoline 10 HP or more Diesel 150 HP or more		Multi-cylinder Gas and Gasoline 10 HP or more Diesel 150 HP or more	
	Heat Exchangers	**Heat Exchangers**		
	(including complete shells)	(including complete shells)		
Line Pipe	**Line Pipe**		**Line Pipe**	
(oil or gas in place) 4" or over	(in place) 4" or over		(in place) 4" or over	
				Meters [1 2]
				Petroleum Displacement Type
	Pressure Vessels and Towers	**Pressure Vessels and Towers**		
	200 or more cubic feet contents	200 or more cubic feet contents		
				Pumps [2 3]
				Dispensing motor driven meter type
	Pumps [2 4]	**Pumps** [2 4]	**Pumps** [2 4]	**Pumps** [2 5]
	(steam or power driven) Centrifugal Horizontal reciprocating Rotary	(steam or power driven) Centrifugal Horizontal reciprocating Rotary	(steam or power driven) Centrifugal Horizontal reciprocating Rotary	(power driven only) Centrifugal Rotary
Pumping Units				
Oil Well (excluding standard rig front) 10 HP or more				
				Tanks [3]
				Steel Storage, 65 gallons to 500 bbls.
Tanks	**Tanks**	**Tanks**	**Tanks**	**Tanks**
Steel Storage, 10,000 bbls or larger	Steel Storage, 10,000 bbls or larger	Steel Storage, 10,000 bbls or larger	Steel Storage, 10,000 bbls or larger	Steel Storage, 10,000 bbls or larger

FOOTNOTES

(These footnotes are applicable to any footnoted material, regardless of the Schedule in which such material is listed.)

Footnoted material is considered "critical material" for the purpose of this Program only where:

(a) In the case of footnote [1], the material is unused, reconditioned or rebuilt.

(b) In the case of footnote [2], the material was sold new to any person (not necessarily to the required participant) at any time since December 31, 1937.

(c) In the case of footnote [3], the material is not actually installed at the time a report under the Program is submitted.

(d) In the case of footnote [4], the material has a new replacement cost (excluding the power unit) of $600 or more.

(e) In the case of footnote [5], the material has a new replacement cost (including the power unit) of $200 or more.

Preference Rating Order P-98-b

As Amended July 9, 1943

Title 32 — National Defense
Chapter IX — War Production Board
Subchapter B — Division of Industry Operations
Part 1041

Production, Transportation, Refining and Marketing of Petroleum. Amendment No. 1 to Preference Rating Order P-98-b, as amended May 15, 1943.

Section 1041.2 (Preference Rating Order P-98-b, as amended May 15, 1943) is hereby amended in the following respects:

(1) Subparagraph (b) (11) which reads as follows is hereby inserted:

(11) "Research laboratory material" means material used exclusively for the purpose of carrying out investigations into more efficient or more effective methods of conducting petroleum industry operations by means of research or technical laboratories, except that such material shall not include material for use in the construction of laboratory buildings or other structures.

(2) Subparagraphs (b) (11) through (b) (14) are hereby renumbered (b) (12) through (b) (15), respectively.

(3) Subparagraph (c) (2) is amended to read as follows:

(2) No operator may apply a preference rating to obtain delivery of any material specified or referred to on Schedule "C" except in conformity with the directions set forth on that schedule.

(4) Subparagraph (d) (1) is amended to read as follows:

(d) **Method of Securing MRO Material and Laboratory Equipment.**

(1) To secure delivery of research laboratory material or material for maintenance or repair purposes or as operating supplies —including without limitation controlled materials, Class A, or Class B products— an operator is hereby authorized to use allotment symbol MRO-P-98-b and a preference rating of AA-1, except for such material to be used in retail marketing (service station operations), to secure the delivery of which a preference rating of AA-5 is hereby authorized. Material delivered or to be delivered for use as research laboratory material, or for maintenance or repair purposes or as operating supplies is referred to as "MRO material."

(5) The first paragraph of subparagraph (f) (5) is amended to read as follows:

(5) Prior to placing with a supplier a delivery order bearing an allotment number and preference rating for the delivery of any material (other than MRO material) to be used in a production operation, each operator shall submit copies of delivery orders to the Petroleum Administration for War or the Office of Oil Controller, as follows:

(i) Where the total cost to the operator of all items on the delivery order is $100.00 or more, but less than $1000.00, and the cost of every item on the delivery order is less than $500.00, **one** copy of such delivery order shall be submitted.

(ii) Where the total cost to the operator of all items on the delivery order is $1000.00 or more or where the cost to the operator of any item on the delivery order is $500.00 or more, **two** copies of such delivery order shall be submitted.

(6) Subparagraph (f) (7) is amended to read as follows:

(7) In placing a delivery order bearing an allotment number and preference rating for material to be used in a production operation, no operator shall alter the customary designation of any item or subdivide an ordinary purchase of any item or items for the purpose of making it appear that an item costs less than $500.00; the total cost of all items on the delivery order is less than $1000.00; or the total cost of all items on the delivery order is less than $100.00.

(7) Subparagraph (n) (6) is amended to read as follows:

(6) To obtain deliveries of material on or after August 1, 1943, unless such operator is a participant in the PAW Materials redistribution Program No. 2 in the event that participation by the operator in such program is required by the terms of the program.

(8) Paragraph (p) which reads as follows is hereby inserted:

(p) **Further Limitations on Use of Priorities Assistance.** The Petroleum Administration for War may issue in its own name further restrictions or limitations on the use of priorities assistance by operators in the petroleum industry.

(9) Paragraphs (p) and (q) are hereby relettered (q) and (r), respectively.

(10) Schedule "C" is amended to read as follows:

SCHEDULE "C" — SPECIAL DIRECTIONS CONCERNING CERTAIN MATERIAL AND EQUIPMENT USED IN THE PETROLEUM INDUSTRY

An operator may apply a preference rating to obtain delivery of the material specified on Lists A, B, and C of Priorities Regulation No. 3, as amended from time to time, only in accordance with paragraph (f) of Priorities Regulation No. 3. Each operator should acquaint himself fully with the new Priorities Regulation No. 3 before applying preference ratings made available by P-98-b.

This amendment shall take effect immediately.

Issued this 9th day of July, 1943.

WAR PRODUCTION BOARD,
By J. JOSEPH WHELAN,
Recording Secretary.

Preference Rating Order P-98-c

As Amended July 9, 1943

Title 32—National Defense
Chapter IX—War Production Board
Subchapter B—Division of Industry Operations
Part 1041

Production, Transportation, Refining and Marketing of Petroleum. Amendment No. 1 to Preference Rating Order P-98-c, as amended May 6, 1943.

Section 1041.3 (Preference Rating Order P-98-c, as amended May 6, 1943) is hereby amended in the following respects:

(1) Subparagraph (a) (2) is amended to read as follows:

(2) "Surplus Material" means with respect to each operator that quantity of any item of material, usable for purposes other than scrap, in the operator's possession or under his control which is determined to be surplus critical material in accordance with Schedule "A", "B", or "C"; or which (with respect to any material not identified as critical material) exceeds the quantity required or scheduled for use during the succeeding 90 days.

(2) Subparagraph (e) (4) is amended to read as follows:

(4) On and after August 1, 1943, no operator who is required to make a certification of compliance under the provisions of the PAW-Materials Redistribution Program No. 2 may submit a contract or purchase order, effect a sale or transfer authorized by the provisions of Paragraph (b) of this order, or apply priorities assistance to obtain delivery of any material unless certification has been made.

(3) Paragraph (d) is amended to read as follows:

(d) **Participation in Material Redistribution Program.** Where any material is to be used by an operator in the United States, its territories or possessions, such operator shall file such applications as are required by the PAW-Materials Redistribution Program No. 2 and shall participate in such program to the extent required by its terms and provisions. Any operator required to make a certification of compliance under the provisions of the PAW-Materials Redistribution Program No. 2 may be deprived of priorities assistance where a determination has been made that such operator has surplus material which he has not made available for redistribution in accordance with such program.

(4) There is added as Paragraph (h) the following:

(h) **Further Limitations on Use of Priorities Assistance.**

The Petroleum Administration for War may issue in its own name further restrictions or limitations on the use of priorities assistance by operator in the petroleum industry.

This amendment shall take effect immediately.

Issued this 9th day of July, 1943.

WAR PRODUCTION BOARD,
By J. JOSEPH WHELAN,
Recording Secretary.

Crude Differentials Must Be Maintained Says OPA

Differentials established in contracts with crude producers must be preserved in cases where the ceiling price for crude is increased, it was held by OPA July 7 in an amendment to the petroleum price schedule effective July 13.

Providing that the maximum price to one holding such a contract is the sum of the contract price and the difference between the specific price set and the lowest posted price as of October 1, 1941, OPA ruled that, as an example, if the ceiling for crude in a particular area was 93 cents per barrel as the lowest posted price on October 1, 1941, and an increase was granted to 98 cents per barrel, a buyer with a contract calling for seven cents per barrel above the 93-cent level will have to pay $1.05 when the ceiling is raised, thus maintaining the previously prevailing differential.

It was ordered that authenticated copies of all such contracts must be filed with OPA within 30 days after the effective date of the amendment unless previously filed.

"The amendment makes clear what was intended to be the practice in cases where specific ceiling prices are established in place of posted prices," it was explained. "These individual area increases have been made in a number of instances where special conditions have made them desirable; they do not result in higher consumer prices, and thus they are not contrary to the President's 'hold the line' order."

In another amendment, effective July 12, OPA placed petroleum coke, except when sold by resellers for use as fuel, under Schedule 88.

Heretofore the product has been generally regarded by the industry as coming under the General Maximum Price Regulation. No material change in ceiling prices will result from the order, which specifies that March, 1942, shall continue as the base period, it was said.

One Vacation Trip Allowed To Eastern Motorists

Holders of A books in the Eastern famine states will be permitted to take vacations at summer resorts, but will be limited to one such trip and allowed to go by automobile only in the event "alternative means of transportation are inadequate."

No additional gasoline rations will be granted for vacation purposes, however, and the distance which can be covered will depend upon how many A coupons the motorist holds. On July 22, each motorist will have available eight A coupons good for three gallons each, which must last him for a period of two months, and OPA warned that motorists stranded along the road will not be given gasoline to get them home.

A special authorization from the local ration board will be required, and persons who do not go on vacation trips will not be permitted to use their A coupons for picnics or outings.

A better than 50 percent cut in traffic on rural roads in the East in the past six months as compared with pre-war days was reported by the Public Roads Administration, which said also that traffic in the rest of the country, which was placed under rationing last December 1, has been reduced more than one third.

California to Give Bonus Allowable To Discovery Wildcat Wells

As an inducement to California oil operators to engage in exploratory drilling, the Production Committee for PAW District 5 has announced the offering of a bonus allowable to any well successfully completed that discovers a new oil field.

In a letter dated July 1 to all California oil producers, E. E. Pyles, chairman of the production committee, said: "The most practical and logical reward which can be offered within the scope and authority of the production committee is to grant a bonus crude oil allotment to any well which constitutes a new discovery. I believe the reward granted by the production committee to those operators who are successful in their wildcat drilling is generous."

The bonus allotment will give successful wildcat wells a quicker and larger return of their capital investment.

The allocation to discovery wells increases progressively with increasing depth, as shown in the accompanying table. The committee has prescribed both the total barrels to be allocated for discovery, as well as the daily rate at which it shall be produced. Wells completed at depths between 2000 and 3000 feet, for example, are given a total allotment of 45,000 barrels which is to be produced at a daily rate of 350 barrels; while wells of 5000 to 6000 feet in depth get a total allocation of 90,000 barrels which is to be produced at 425 barrels per day. The scale is graduated for intermediate and other depths.

In no case, however, is any well granted an allotment greater than its capacity to produce, or for which there are markets and transportation facilities. The Engineering Subcommittee of the Production Committee will determine if any successful wildcat completion can produce the maximum rate without damage to the reservoir. This will be determined from pertinent reservoir and surface data which the operator will be requested to furnish. Thus production at the bonus rate will not be extended to wells with extremely high gas-oil ratios nor where the natural gas produced with the crude oil cannot be utilized. Completion of an offset well located in the same pool within 1320 feet of the discovery well will terminate the bonus allotment to the discovery well at the end of the calendar month in which the first offset was completed. In the interim between the completion of an offset well and the end of the calendar month, all offset wells will be permitted to produce at the same rate as the discovery well.

It is necessary for the Production Committee to certify that wells have made a discovery before they are entitled to the bonus allowable. The bonus allotment will apply to all discovery wells completed since May 1, 1943.

Plan Field Hearings To Learn Texas Potential

The Texas Railroad Commission has set its next statewide proration hearing for July 16, at Austin. While no unusual features are expected then, it is possible that the commission will announce its policy concerning field hearings to be called later.

Commission Chairman Beauford Jester pointed out that the demand for Texas oil is increasing steadily and will continue to increase throughout the war. Most fields are producing at capacity now, and it has become necessary for the commission to determine which fields can produce more.

To this end, he said, the commission expects to call a series of hearings on fields which might reasonably be expected to increase their production without waste. Operators will be called upon to present evidence on this question and allowables may be adjusted thereafter to conform to this information.

The Commission last Friday made the first move in its effort to determine which fields can produce more oil. Three hearings were scheduled at which operators were expected to supply the following information: gas-oil ratios, bottom-hole pressures, water percentages and reserve estimates on each of his leases; a reserve estimate of the entire field.

The first hearing will be on the Bay City field and is set for July 19. This resulted from an application of Skelly Oil Company for a hearing to determine whether the field could produce 100 barrels per well daily or more. The second and third hearings were called on the Commission's own motion and include 20 fields in District 2. It is probable that no more hearings will be called until these are over, so that the commission may be sure that it is on the right track.

On July 20, the fields heard will be Greta, Greta Deep, Heyser, Jay Welder, La Rosa, South Caesar, McFadden, Placedo, Placedo East, and Tom O'Connor.

At the hearing on July 21, the commission will take up Harmon, Maurbro, West Mauritz, Mayo, Stewart, West Ranch, Ganado West, Ganado Deep, North La Ward, and Lolita.

One company has suggested that the commission appoint a committee from the industry headed by Commission Petroleum Engineer Jack Baumel. This committee would gather the information on all fields more quickly, it is believed, and the need for many hearings would be eliminated.

California Maximum Well Allotment for New Discovery Well

DEPTH IN FEET	Total Barrels	Barrels Per Day
less than 1,000	15,000	300
1,000 or more and less than 2,000	30,000	325
2,000 or more and less than 3,000	45,000	350
3,000 or more and less than 4,000	60,000	375
4,000 or more and less than 5,000	75,000	400
5,000 or more and less than 6,000	90,000	425
6,000 or more and less than 7,000	105,000	450
7,000 or more and less than 8,000	120,000	475
8,000 or more and less than 9,000	135,000	500
9,000 or more and less than 10,000	150,000	525
10,000 or more and less than 11,000	165,000	550
11,000 or more and less than 12,000	180,000	575
12,000 or more and less than 13,000	195,000	600

Average Frequency of Petroleum Accidents Up

The average frequency rate for accidents in all divisions of the petroleum industry from July 1, 1942 to June 1, 1943, increased one percent over the same period from 1941 to 1942, according to the monthly bulletin of the National Safety Council. For all divisions for the 10-month period beginning July 1 last year and ending June 1, this year, the average frequency rate of accidents was 9.47 per month.

Donald B. Collins Died July 3, 1943

Donald B. Collins, production manager of Shell Oil Company at Houston, died July 3. He was born at Grass Valley, California, February 19, 1896. In 1907, he moved to Berkeley, and graduated from the College of Mining in Petroleum Engineering, University of California, in 1920. During World War I, he served in France and Russia with the engineering and transportation corps. Upon graduation from college, he worked as a petroleum engineer for Ford, Bacon & Davis, and for J. H. G. Wolfe, consulting engineers. He entered the employ of the Shell Oil Company in April, 1923, and worked in many capacities for that organization, finally being made production manager, with headquarters in Houston, in 1934. Activities of various organizations related to the petroleum industry always had his cooperation and he participated in API work nationally and locally.

DONALD B. COLLINS

Residual Fuel Oils Taken from Storage As Refinery Runs of Crude Are Reduced

Although the refineries of the United States are processing around 10 per cent more crude than they were a year ago, they are barely meeting the heavy requirements of today for petroleum products.

Crude runs to stills in the week ended July 3 were 354,000 barrels per day, or 9.9% higher than the corresponding week last year, and yet there occurred a heavy withdrawal of residual fuel oil from storage, a material and normal withdrawal of gasoline, while there was no more than a normal and relatively small accumulation of gas, oil and distillate fuel in the tanks.

The heavy draft on residual fuel was accounted for only to a comparatively small extent by reduction of production of that product. However, the taking of 1¼ million barrels of gasoline from storage was explained by a cutting down of production, the output of that product having been 859,000 barrels less than in the previous week. The addition of over 300,000 barrels of light fuel oil to storage occurred in spite of the fact that about 200,000 barrels less of that product was made than in the previous week.

The refinery runs in the week ended July 3 averaged 3,905,000 barrels daily, down 110,000 barrels from the week before. While this was a substantial decrease, the runs of the previous week had represented a peak for this year, and therefore even at the lower figure the operations were comparatively active. Crude oil production averaged 4,008,000 barrels per day, up 53,000 barrels from the week before and in excess of the output of the corresponding week last year by the comparatively large amount of 711,000 barrels per day, or 21.5 per cent. The production was within 12,000 barrels of this year's high that was reached in May, and output likely will be still higher in the week of July 10 in reflection of increased allowables.

Stocks of crude oil continued to diminish in the week ended June 26, the latest Bureau of Mines report indicated. The stocks came down from 243,516,000 barrels to 242,657 barrels, a reduction of 859,000 barrels. At the new level the stocks were 10,707,000 barrels, or 4 per cent, lower than a year ago.

Stocks of finished and unfinished gasoline were brought down 1,273,000 barrels in the week of July 3, and then totalled 78,316,000 barrels. That quantity was 8,698,000 barrels, or approxi-

Crude Oil Production in the United States

(Estimates compiled by The Oil Weekly. All figures indicate daily averages, in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED July 3	July 10
Arkansas	75,200	74,500
California	768,200	775,350
Long Beach	31,050	31,800
Midway-Sunset	55,000	57,000
Kettleman Hills	41,400	41,750
Wilmington	93,150	93,200
Rest of State	547,600	551,600
Colorado	7,000	7,000
Illinois	221,200	220,400
Salem	29,200	29,600
Louden	39,500	38,900
Other New Pools	141,500	140,800
Old Pools	11,000	11,100
Indiana	14,600	14,750
Kansas	280,150	280,150
Kentucky	20,200	19,900
Louisiana	335,700	348,400
North Louisiana	85,100	84,100
South Louisiana	250,600	264,300
Michigan	54,500	54,500
Mississippi	55,200	51,400
Missouri	95	95
Montana	23,150	22,025
Nebraska	2,050	2,050
New Mexico	97,150	97,300
New York	14,550	14,500
Ohio	9,100	9,100
Oklahoma	335,500	335,050
Oklahoma City	59,800	59,600
Seminole Area	76,600	74,800
Rest of State	199,100	200,650
Pennsylvania	50,400	50,300
Tennessee	30	30
Texas	1,550,200	1,616,600
Upper Gulf Coast	394,700	413,200
East Texas Field	350,500	370,800
Rest of Eastern Texas	125,600	127,700
Lower Gulf Coast	140,200	146,800
Southwest Texas	61,300	66,600
South Central Texas	16,800	16,500
West Texas	236,000	246,200
North Texas	134,700	138,300
Panhandle	90,400	90,500
Utah	10	10
West Virginia	8,900	9,000
Wyoming	92,500	93,000
Total United States	4,015,585	4,095,410

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod. Barrels Daily	Week Ended	Runs to Stills Barrels Daily	Week Ended	Crude Stocks Barrels	Week Ended	Gasoline Stocks Barrels	Week Ended	Gas Oil & Distillate Stocks Barrels	Week Ended	Residual Fuel Oil Stocks Barrels	Week Ended
Highs:												
1939	3,910	8- 5	3,650	10-21	278,607	5-26	87,769	4-22	39,562	10-28	116,237	8-26
1940	3,890	3-16	3,690	6-22	265,865	8-31	102,817	4-20	49,051	10-19	109,135	9-14
1941	4,337	11-22	[1]4,120	10-18	266,187	3-29	99,727	3-29	[1]54,983	11-15	102,448	1- 4
1942	[1]4,337	2- 7	3,961	1- 3	263,208	3-28	[1]109,281	3-14	49,861	11-14	95,857	1- 3
1943	4,020	5- 8	4,015	6-26	245,752	5-29	94,159	3-20	42,913	1- 2	72,881	1- 2
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[2]229,127	10-12	71,152	10- 7	20,722	4-15	105,397	4—8
1940	3,335	11-30	3,370	1- 6	237,339	1-27	79,847	11- 9	23,551	4- 6	102,344	2-10
1941	3,364	1-11	3,490	1-18	240,399	11-15	79,923	10- 4	28,381	4-12	90,914	7-12
1942	3,297	7- 4	3,393	5-23	231,896	12-12	75,934	12-	29,240	4-25	72,962	12-26
1943	3,821	1- 9	3,579	3-13	232,191	1- 9	78,316	7- 3	30,732	4- 3	66,470	7- 3

TRENDS OF 1942 AND 1943

Trends in Week Ended:	Crude Oil Production Daily	Runs to Stills Daily	Stocks Week End	Gasoline Production Weekly	Stocks Week End	Gas Oil & Distillate Production Weekly	Stocks Week End	Residual Fuel Production Weekly	Stocks Week End
1942:									
January 3	4,038	3,961	244,440	13,797	92,987	3,855	49,357	6,918	95,857
January 31	3,871	3,848	250,740	13,292	97,810	3,817	40,674	6,640	91,189
February 28	4,016	3,675	259,373	12,131	105,635	3,799	34,547	6,813	88,285
March 28	3,820	3,667	263,208	11,663	105,624	3,661	31,756	6,344	83,045
April 25	3,581	3,506	257,073	10,535	102,897	3,267	29,240	6,869	81,107
May 30	3,877	3,522	255,023	10,478	95,355	3,034	31,384	6,993	79,628
June 27	3,719	3,581	253,364	10,713	88,396	3,549	32,851	6,615	77,304
July 25	3,691	3,658	249,262	10,864	82,281	....	35,966	.....	77,816
August 29	3,964	3,697	249,007	11,300	80,831	....	42,060	.....	78,034
September 26	3,909	3,802	242,785	10,954	80,550	....	45,945	.....	78,943
October 31	3,901	3,731	249,266	11,153	79,159	....	48,131	.....	79,166
November 28	3,878	3,736	234,850	11,269	78,854	....	49,739	.....	77,796
1943:									
January 2	3,871	3,734	233,938	10,957	82,420	4,285	42,913	7,683	72,881
January 30	3,826	3,698	233,863	10,339	88,830	3,888	37,057	7,452	70,763
February 27	3,873	3,709	235,217	10,566	93,157	4,230	32,939	7,839	70,140
March 27	3,896	3,742	239,126	10,231	94,079	3,541	30,980	8,018	67,938
April 24	3,913	3,737	242,035	10,583	91,001	3,954	31,142	8,168	67,455
May 29	3,970	4,679	245,752	10,656	83,937	3,798	32,274	7,672	67,682
June 5	3,933	3,662	245,107	10,632	82,205	3,063	32,577	7,505	67,461
June 12	3,988	3,799	244,720	10,626	81,114	3,520	32,555	7,674	67,652
June 19	3,966	3,905	243,516	11,152	79,806	3,734	33,558	8,198	67,455
June 26	3,955	4,015	242,657	11,092	79,589	3,876	34,044	8,126	67,960
July 3, 1943	**4,008**	**3,905**	.....	**10,892**	**78,316**	**3,659**	**34,380**	**7,815**	**66,470**
July 4, 1942	3,297	3,551	[4]253,364	10,959	87,014	3,605	33,520	6,719	76,903
Change:									
In week	+53	—110	—859	—200	—1,273	—217	+336	—311	—1,490
In year	+711	+354	—10,707	—67	—8,698	+54	+860	+1,096	—10,433
In year	+21.5%	+9.9%	—4.2%	—0.6%	—9.9%	+1.4%	+2.5%	+16.3%	—13.5%

[1] All time peak. [2] Lowest since April, 1922. [3] Lowest since October, 1922 due to shutdown of six Mid-Continent States. [4] Stocks, June 27, 1942.

mately 10 per cent, less than the 87,014,000 barrels on hand July 4, 1942. This reduction in stocks is fairly well in line with the decrease which has occurred in the consumption of gasoline.

Stocks of gas oil and distillate fuel were further built up by 336,000 barrels to a total of 34,380,000 barrels in the week ended July 3. This addition was somewhat smaller than those in other recent weeks. The stocks of this product now are only 2.5% larger than a year ago, indicating that the industry may be heading into trouble in supplying it next winter. The production of gas oil and distillate fuel for the week of July 3 was about 30,000 barrels per day lower than in the previous week, although it was about 8000 barrels a day or 1.4% higher than in the like week last year.

Stocks of residual fuel oil were brought down in the week of July 3 from 67,960,000 barrels, to 66,470,000 barrels, a decrease of nearly 1½ million barrels. The present inventory is roughly 10 million barrels, or 13½ per cent, smaller than that held a year ago. While this withdrawal from residual fuel oil stocks for the week was large, it was accounted for to the extent of about 300,000 barrels by a cutting back in that amount on production. During the week, production totalled 7,815,000 barrels, and was 1,096,000 barrels, or 16 per cent, greater than the output of 6,719,000 barrels in the week ended July 4, 1942.

PIPE LINE REVIEW

Permit Sought for 22-Inch Gas Line by Hope Company

Hope Natural Gas Company has filed an application with the Federal Power Commission in Washington for a 1140-mile, 22-inch natural gas line to be built from the Hugoton field in Southwestern Kansas to connect with a present line in Kanawha County, West Virginia. Cost of the project is given at $51,000,000.

Financing of the line is to be through a bond issue of approximately $40,000,000, with the balance to be paid from current assets of the company.

In order to avoid large curtailments to important war industries in the Appalachian area, the line must be put into operation by the summer of 1944, according to the application.

Gas made available through the proposed construction would amount to 180,000,000 cubic feet per day, with 68,000 horsepower from mine compressor stations handling the gas. Additional stations can boost the throughput at the eastern end to 240,000,000 cubic feet per day, it is claimed.

"The proposed facilities are required by the present and future public convenience and necessity, peacetime and war alike," states the application. It also adds, "while the critical supply situation results from the war, the proposed facilities will be fully required in the postwar period to meet the normal market requirements of applicant and its affiliates. Even though these demands may fall below present levels, applicant anticipates, in the light of its experience following the former war production period of 1916 to 1918, that new supplies of gas must be brought into the Appalachian area to augment West Virginia gas and to aid in meeting normal market requirements. Applicant, therefore, intends that the facilities shall not be regarded merely as a wartime measure but shall constitute a long-term project for bringing supplies of gas into the Appalachian area."

The company is in position to commence construction of the line immediately upon receipt of the necessary authority from the Office of War Utilities and from the Federal Power Commission. In a letter to the commission, it is stated that "In 1941, prior to the amendment to Section 7 of the Natural Gas Act, this company purchased a right-of-way for a proposed pipe line to the Monroe field in Louisiana, and 225 miles of that right-of-way, from Cornmell station to Danville, Kentucky, will be available for the proposed line. Two station sites upon this portion of the right-of-way also were acquired in 1941. Construction of this portion of the line and these two compressor stations could be commenced immediately upon receipt of materials, so that work could be carried on pending the survey and acquisition of rights-of-way for the remainder of the proposed line.

"We are presently engaged in negotiating contracts for the purchase of gas from producers operating in the Hugoton gas field, and we are formulating plans for the letting of construction contracts all contingent upon obtaining necessary governmental authority for the line."

"An application to the Office of War Utilities for necessary priorities and allocation of materials and for authority to commence construction is being concurrently filed, and we will prosecute such application with due diligence," the company stated.

Humble Proposes Line in West Texas

Humble Pipe Line Company is surveying for a proposed 14-mile 4-inch crude line to extend from the Barnhart field, largest producing area in West Texas without a pipe line connection, to its Kemper terminal. The 21 wells in this 9100-foot producing area have relied upon tank trucks for an outlet since August, 1941.

Longview-Shreveport Line Pipe Being Removed

Crews are at work on dismantling Atlas Oil & Refining Corporation's 57-mile 8-inch welded oil line from Longview to Shreveport following sale of this unit to Humble Pipe Line Company for $221,223.63. This line was built in 1931 by Atlas Pipe Line Corporation to move East Texas crude to Shreveport, but has been inactive nine years. The pipe and station equipment will be used in a line that is awaiting approval by PAW.

Crude Production Jumps To New High for Year

United States production of crude oil climbed to a new high for this year in averaging 4,095,410 barrels per day during the week ended July 10. This was about 75,000 barrels per day more than the previously touched peak of 1943, recorded in the first week of May. It was 79,825 barrels a day more than production in the preceding week.

Largely accounting for the week's increase in output was Texas, which rose 66,400 barrels in turning out 1,616,600 barrels, under the higher allowables for July. All districts of that state showed increases.

California increased about 7000 barrels in averaging 775,350 barrels per day. Louisiana rose nearly 9,000 barrels to 348,400 daily

About unchanged were Arkansas at 74,500 barrels per day, Colorado at 7000, Illinois at 220,400, Indiana at 14,750, Kansas at 280,150, Kentucky at 19,900, Michigan at 54,500, Montana at 22,025, New Mexico at 97,300, Oklahoma at 335,050, Pennsylvania at 50,300, West Virginia at 9000, and Wyoming at 93,000.

Gasoline More Free in East, But Markets Still Tight

Markets continue characterized by the extremely tight conditions of recent weeks, although there has been some slight improvement in gasoline supply for the East Coast district, where stocks are critically low. Helping to relieve the situation there, apparently, is not only a fair movement of gasoline into the area but also a minimum of buying at service stations.

Available supplies of kerosene and fuel oil in the East Coast area continue tight, and prices generally are unchanged.

In the Middle West there is continued scarcity of materials and shipping in reflection of diversion of supplies to the East to help alleviate the shortage there. Stocks of all products remain very low, and during the past several weeks there has been noted a material increase in the demand for No. 2 and No. 3 heating oils, while a further important expansion of demand is generally anticipated. Kerosene and gas oils are being actively sought by eastern buyers. Third grade gasoline has been in exceptionally strong demand in recent weeks, due partially to the heavy call for agricultural purposes.

The comparatively tight markets which have prevailed in the upper Mid-Continent during past weeks have shown no loosening up. Refiners still are forced by deficiency of supplies to allocate their available products among regular customers and to turn down inquiries for various materials. Practically all refiners of the district report low inventories of all refined products. As in other weeks recently, there is considerable difficulty in supplying the demand for third grade gasoline, under the current heavy buying for agricultural purposes. Tractor fuel is very scarce, and in some cases, house brand gasoline has to be substituted. Demand for lubricants continues good in the Mid-Continent, and some refiners report that they are down to minimum working stocks on inventories of both bright stocks and neutral oils. Bright stocks particularly are in strong demand.

The markets of the Western Pennsylvania refining district continue generally tight, although as on the Atlantic seaboard, there has been noted some loosening up of supplies of gasoline, under the

pleasure driving restrictions in the East and the resultant increases in stocks of both suppliers and retailers. A feature of the market in the district is the increased strength of neutral oils, accentuated lately by the 15 percent reduction of supplies of crude being delivered by a large seller, effective June 1. The reduced volume of available raw material has forced curtailment of production of the neutrals, with the result that supply falls below demand. However, there has not been so far enough tightening of supply to cause important changes in prices.

Commission Plans East Texas Water Exceptions

Exceptions to its East Texas water-oil ratio program are permitted under provisions of a new commission order last week. The plan applies to operators who have unusual difficulties in handling the salt water.

If they are remote from disposal systems, have unusual shale or other conditions that make return of water to the reservoir difficult or impossible, the commission will hold a hearing, grant whatever relief seems advisable.

The new order also makes it imperative for complaining operators to come before the commission before they file suits attacking the water-oil ratio order.

Well Completion Rate Up in June; Total Down 21.7 Percent for Year

Probably in reflection of the fact that the summer normally brings some expansion in drilling, there was an increase in weekly average well completions in the United States for June of this year. Having averaged 367 per week during the 4 weeks ended June 26, the completions were at the highest level for this year. That average compared with 339 per week for May, an increase of 8 percent. The June, 1943, completion rate was, however, 6 percent under the 391 wells per week completed in June, 1942.

In the first half of this year there was 21 percent less drilling than in the initial half of last year. If this same rate of decrease under last year continues, there will be recorded for 1943 a total of approximately 17,000 new wells. That would be the lowest rate of drilling since the depression, smaller numbers of completions having occurred in modern years only in 1931, 1932, and 1933, when the totals were about 12,000 to 15,000 per year. This projected rate of 17,000 completions for 1943 would be only slightly more than one half of the 32,210 reported for 1941, last year before U. S. participation in this war.

While U. S. drilling as a whole has been off over 20 percent this year, several states and districts have run counter to the trend. California has furnished nearly twice as many completions in 1943 as in 1942; Colorado and Kentucky have supplied twice as many; while other increases have included those of 59 percent for Wyoming, 28 percent for Montana and 13 percent for Arkansas.

Texas shows for this year a 41 percent decrease in completions, with all districts down. Other decreases have included those of 7 percent for Illinois, 40 percent for Indiana, 2 percent for Kansas, 42 percent for Louisiana, 30 percent for Michigan, 72 percent for Mississippi, 39 percent for New Mexico, 1 percent for New York, 23 percent for Ohio, 15 percent for Oklahoma, 33 percent for Pennsylvania, 18 percent for West Virginia.

June Brings Increase in Weekly Average Completions

(Figures compiled from weekly reports of editorial staff men, with following exceptions: Arkansas data from Arkansas Oil & Gas Commission; California from A.P.I. except for May and June; Illinois from Illinois Geological Survey except for May and June; Indiana from Indiana Division of Geology; Missouri from Missouri Geological Survey; Bradford and Kane-Clarendon, Pennsylvania, from The Producer's Monthly; Tennessee from Tennessee Division of Geology.)

State or District	MONTHLY COMPLETIONS: June, 1943 — Details for June, 1943 — New Wells *Oil	Gas	Dry	Others[6]	Old Wells Deepened	Total Completions — June, 1943[1]	May, 1943[3]	June, 1942[2]	Total Footage June, 1943	CUMULATIVE COMPLETIONS: First 6 Months — Details for Jan.-June, 1943 — New Wells *Oil	Gas	Dry	Others[6]	Old Wells Deepened	Total Completions — Jan.-June, 1943[5]	Jan.-June, 1942[4]	Percent Change	Total Footage 6 Months, 1943	RIGS IN OPERATION — Details for July 1, 1943 — Drilling	Rigs Up	Shut Down	Total: Drilling RU and SD — July 1, 1943	June 1, 1943	July 1, 1942
Alabama			1			1			5,717			1			1	3	— 66.6	5,717	1			1		5
Arkansas	13		11			24	25	17	108,019	68	1	40	2	1	112	99	+ 13.1	586,942	21	4	7	32	54	20
California	93	4	19		4	120	151	61	410,090	539	13	171		12	735	386	+ 90.4	2,403,282	227	64	18	309	293	194
Colorado	1		1			2		1	2,110	5		5			10	5	+100.0	30,339	9		7	16	15	23
Florida																			1		1	2	1	4
Georgia			1			1			1,240			1			1	2	— 50.0	1,240			1	1	1	
Illinois	49		46	1	3	99	170	168	245,663	494	9	325	13	24	865	931	— 7.0	2,117,042	146	24	16	186	172	213
Indiana	5		7			12	19	42	19,872	41	2	68		4	115	194	— 40.7	198,491	19	4	14	37	35	49
Iowa																					2	2	2	1
Kansas	71		44	2		117	191	163	387,977	388	13	348	13	15	777	789	— 1.5	2,579,207	193	31	2	226	198	196
Kentucky	14		15	1		30	29	15	62,006	83	4	56	1	1	145	72	+101.3	291,639	45	4	4	53	55	23
Louisiana	33	4	25			62	72	83	404,295	162	18	120			300	515	— 41.7	2,092,182	79	6	19	104	116	120
North	10	3	17			30	35	32	113,404	53	14	65			132	231	— 42.8	565,528	26	3	14	43	52	42
South	23	1	8			32	37	51	290,891	109	4	55			168	284	— 40.8	1,526,654	53	3	5	61	64	78
Michigan	14	7	28			49	47	81	124,669	95	12	128		6	241	345	— 30.1	631,151	61	15	37	113	117	123
Mississippi	2		4			6	4	8	21,514	6		12			18	65	— 72.3	96,887	8	2	4	14	14	6
Missouri		2	1			3	4	1	1,315	1	2	7			10	16	— 37.5	8,863	3		1	4	3	6
Montana	25	2	8			35	13	18	68,525	63	26	17			106	83	+ 27.7	219,569	39	7	6	52	51	64
Nebraska								1								25			1	1		2		25
New Mexico	15	1	1			17	24	38	60,496	79	5	34		6	124	204	— 39.2	364,601	51	4	14	69	67	96
New York	67			34		101	109	105	138,319	375	3	2	186		566	572	— 1.0	781,340	93	26	10	129	132	145
North Dakota																			1		1	2	2	1
Ohio	11	39	20		2	72	61	97	181,730	63	214	130	1	7	415	539	— 23.0	1,059,749	171	15	41	227	212	181
Oklahoma	31	10	41	6	9	97	110	126	206,361	233	54	280	28	49	644	757	— 14.9	1,891,140	238	18	4	260	239	217
Oregon																					1	1	1	2
Pennsylvania	112	23	14	99	1	249	225	377	429,917	593	133	41	541	8	1,316	1,979	— 33.5	2,232,432	233	28	46	307	275	429
South Dakota																			1		2	3	3	2
Tennessee							1	1			2				2	7	— 71.4	2,383	3		1	4	5	3
Texas	149	3	147	8	8	315	389	479	1,381,589	941	67	802	18	58	1,886	3,183	— 40.7	7,903,211	485	42	71	598	580	631
E. T. Bor. Co.'s	3		2			5	1	1	31,095	9		3			12	7	+ 71.4	74,727	7			7	7	6
E. Tex. Field				3		3		2	7,670			5			5	15	— 66.6	11,950						1
Rest of E. Tex	9		10		1	20	25	26	105,147	53	2	56		1	112	200	— 44.0	595,620	27	3	6	36	38	54
North Texas	28		35	5	1	69	87	94	215,410	161		238	17	14	430	525	— 18.0	1,174,788	90	6	22	118	118	87
West Central	7		17		1	25	32	37	56,247	42	8	103		6	159	201	— 20.8	352,535	47	5	12	64	41	53
West Texas	42	1	16		3	62	96	121	275,259	320	4	80		27	431	912	— 52.7	1,831,907	138	13	12	163	204	161
Panhandle	11		2		1	14	16	22	40,516	61	22	13		7	103	232	— 55.6	297,047	25	3	2	30	27	43
Upper Coast	16		16			32	34	48	266,211	78	3	61			142	272	— 47.7	1,096,440	49	6	6	61	54	63
Lower Coast	25	1	26			52	58	82	269,279	159	23	100	1	2	285	494	— 42.3	1,692,473	67	3	7	77	53	95
Southwest	7	1	19		1	28	38	36	102,294	54	5	114		1	174	255	— 31.7	686,693	27	3	2	32	30	25
South Central	1		4			5	2	10	12,461	4		29			33	70	— 52.8	89,031	8		2	10	8	43
Utah																			4		3	7	7	3
West Virginia	3	36	3		2	44	45	67	134,064	36	189	46		13	284	349	— 18.6	810,234	33	5	7	45	48	65
Wyoming	11		2			13	6	4	54,492	49	1	9			59	37	+ 59.4	248,888	34	2	10	46	45	58
Total U.S.	719	131	439	151	29	1,469	1,695	1,953	4,449,980	4,314	768	2,643	803	204	8,732	11,157	— 21.7	26,556,529	2,200	302	350	2,852	2,743	2,905

* Includes distillate wells. [1] Wells completed in 4 weeks, or 28 days, ended June 26, 1943. [2] Wells completed in 5 weeks, or 35 days, ended June 27, 1942. [3] Wells completed in 5 weeks, or 35 days, ended May 29, 1943. [4] Wells completed in 26 weeks, or 182 days, ended June 27, 1942. [5] Wells completed in 26 weeks, or 182 days, ended June 26, 1943. [6] Water input, gas injection, and salt water disposal wells.

More Rumanian Oil for Germany Sought; But Concern Felt Over Declining Output

In order to draw more heavily on Rumanian petroleum, the Germans have collaborated in expansion of oil-handling facilities in Rumania. Port facilities at Giurgiu, principal oil port on the Danube, have been enlarged, and the Danubian ports of Orsova and New Moldova have been improved. A second pipe line between Giurgiu and Ploesti, oil-producing center, was finished early in 1942.

Meanwhile, there has been double-tracking of some of the former single-track railway lines in Rumania and other work in the expansion of transportation facilities, all of which naturally would facilitate movement of oils to Germany.

Plans are going forward in Rumania for construction of a canal from Constanta, on the Black Sea, to Czernavoda on the Danube and on to Bucharest. The canal is intended to relieve congestion on railway lines and to avoid long hauls. At present, there is a double-track railway line from Constanta to Czernavoda but only single-track line from Czernavoda to Bucharest, and the proposed canal would relieve congestion on this traffic.

Production Off Sharply

Although reports on petroleum production in Europe are fragmentary and questionable, it appears that some credence may be put in European press reports that there is much concern in Rumanian economic and government quarters over steady decline in the production of that country. The anxiety naturally would be shared by Nazi leaders, who depend heavily on Rumanian oil for their military requirements. Rumanian production represents about one third of all the oil supply (including synthetic products) available to the Axis powers in Europe. The quantities of Rumanian oils actually exported to Germany represent about one fifth of the total consumption of Axis-controlled Europe.

In 1942, according to best available information, Rumania experienced a further decline of at least 10 percent in crude-oil production, and output was not much more than one half of that in 1936. In reflection of the declining production, exports to Germany are indicated to have been around 10 percent less in 1942 than in 1943, despite strenuous efforts in both those years to step up shipments, through political and economic-trade methods, as well as through supplying equipment and technical aid.

The indicated decline in Rumanian production in 1942 was an extension, apparently at accelerated rate, of a steady downward trend that had been in progress since 1936. Rumania's original troubles in maintaining production were based in large measure on the fact that governmental policies were adopted which discouraged development, and the continued decline in production has reflected the lack of new fields to replace those in process of depletion. The decline in the past few years may have been accelerated, too, by damage to fields through too-heavy withdrawals from the reservoirs.

Since reaching the all-time peak of 63,659,000 barrels in 1936, Rumanian production of crude oil has declined as follows, figures being from the United States Bureau of Mines except for 1942, which is here estimated:

Year	Barrels Production
1936	63,659,000
1937	52,452,000
1938	48,487,000
1939	45,483,000
1940	42,182,000
1941	38,147,000
1942	34,000,000

Actually, the estimate of 34,000,000 barrels for Rumanian production in 1942 may be too high, judging by some reports, which indicated that output in the first half of the year was only about 15,000,000 barrels, or on the basis of 30,000,000 per year.

Dambovitsa Area Wanes

It was pointed out that the decline in production was especially serious in the Dambovitsa district, in which are located such pools as Ochiuri, Bucsani, Gura Ocnitei, and Moreni. That district was in 1936 the most productive field in Rumania, having yielded in that year 36,500,000 barrels. But it dropped off to 19,500,000 barrels in 1937, and in 1941 produced probably only about 12,500,000 barrels, while a further sharp drop was indicated for 1942.

Meanwhile, the Prahova district, immediately north and east of the Dambovitsa area, and 28 miles north of Bucharest, hit a peak production of about 28,500,000 barrels in 1939, and had dropped by 1941 to about 25,000,000 barrels. In the district are individual pools that include the following: Campina, Bustenari, Runcu, Piscuri, Baicoi, Boldesti, and Ceptura.

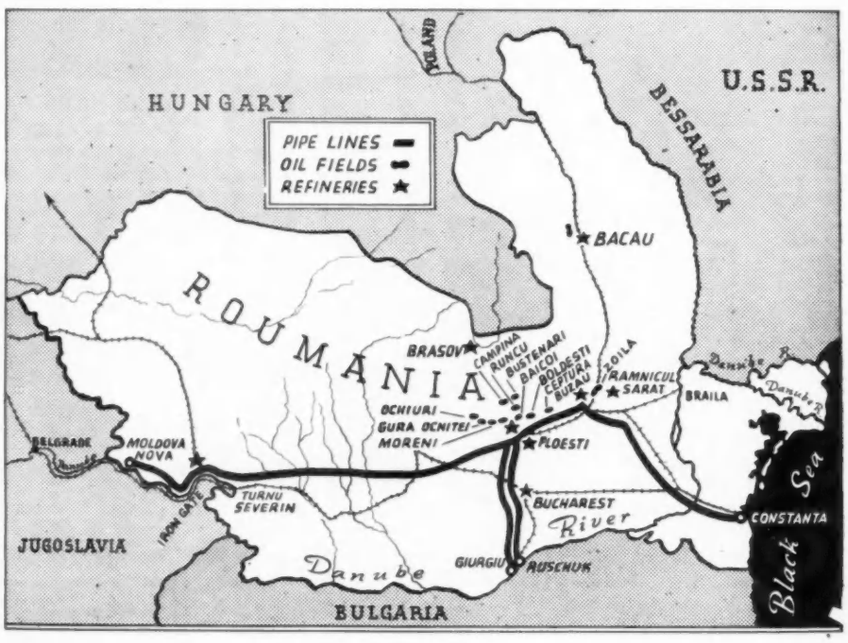
The two above named districts or fields account for most of Rumania's production, the remaining relatively unimportant output being from the Buzau region, 80 miles northeast of Bucharest, and the Bacau area, farther to the north and 188 miles from Bucharest, each of those fields having yielded around 250,000 barrels in 1941.

Although Rumanian refineries have rated capacity for processing about 75,000,000 barrels of crude per year, or over 200,000 daily, they very likely did not charge to stills in 1942 more than about 30,000,000 barrels, or 80,000 daily. During 1941, the Rumanian refineries turned out approximately 4,625,000 metric tons of refined products, data to convert tons to barrels not being available for use here.

In spite of extreme efforts of the Germans to increase supply of Rumanian oils going to them, the exports to Germany amounted to only about 3,000,000 metric tons in 1941, and a decline of 10 to 15 percent in such exports for 1942 appeared inevitable.

All Motor Fuels Put Under Single Control in France

Control of virtually all motor fuels in France except alcohol distillation has been placed in the Comité d'Organisation des Carburants de Remplacement, according to the British press.



Sweden Develops Large Output of Shale Oil and Makes Wide Use of Producer Gas

While the Germans have been remarkably successful in obtaining necessary oils from sources other than petroleum, there has been similarly noteworthy success in Sweden in alleviating the shortage of oils by resorting to substitute sources in lieu of virtually eliminated imports of petroleum products.

Sweden has become a leading country in the manufacture and use of producer gas equipment for powering motor vehicles; is greatly expanding production of oil from shale, in which field the country is becoming a leading nation; and also is carrying on important experimentation in the production of lubricating oils from non-petroleum sources.

More than 3 out of every 5 motor vehicles in Sweden now are propelled by producer gas, generated in gasogenes from charcoal, wood, or other solid fuels. Nearly two thirds of the nation's pre-war fleet of commercial vehicles have been converted to producer gas and around one fifth of the passenger cars. The State Railways of Sweden are using producer gas, obtained from wood, for 90 percent of the motor vehicles they operate, including (as of the beginning of this year (472 buses and 87 trucks. Sweden has been making gasogene equipment not only for domestic use but also for export to other countries, including Portugal, Spain, Turkey, and Argentina, where shortages of gasoline have been brought about by the war.

Sweden now appears destined to be a leader among European nations in production of oil from shale, despite the fact that the shales in the country are relatively low in content of oil.

Recent reports indicated that the two principal shale oil concerns in the Province of Vaestergoetland would be consolidated, under authorization of the Swedish Riksdag. Approval was given also for granting 255,600,000 crowns for the extension of existing plants and for production of shale oil by the Ljungstroem method. Through these measures, an increase in the shale oil production of the district from 37,000 to about 81,000 metric tons (roughly 567,000 barrels) per year is expected.

The shale oil plant at Kinne-Kleva (Kinnekulle) in the Province of Vastergotland, owned and controlled by the Swedish Naval Authorities, has been in operation for nearly two years and it now produces over 30,000 metric tons of fuel oil a year, chiefly for the Swedish Navy. Some months ago a new test plant at Kinne-Kleva started production of light benzine, utilizing a gas of high quality, which, together with shale oil, was obtained from the shale distillation process. Another new plant has been built at Kinne-Kleva for the experimental manufacture of gas oil.

Although it was estimated in 1941 that Sweden then had known deposits containing 360,000,000 metric tons of shale oil (about 2,500,000,000 barrels), subsequent discoveries have indicated supplies greatly exceeding that amount.

Around 25,000,000 tons (175,000,000 barrels) of shale oil may be recovered, it is estimated, from the Kinnekulle deposits.

The largest shale reserves of any province is credited to Ostergotland, although the oil content there is relatively low, averaging only about 4 percent. It is estimated that the province has about 6,000,000,000 metric tons of shale containing around 250,000,000 tons (1,750,000,000 barrels) of oil.

Between 50,000,000 and 60,000,000 metric tons of oil are believed to be contained in the shales in Narke Province between the northern tip of Lake Vannern and Lake Hjalmar.

There are important deposits along the southeast coast of Sweden, although the oil content of the latter may be too low to justify commercial development.

Four different methods have been employed heretofore in the Swedish plants for extracting the oil from the shale. Among these methods, the one that is proving most successful is the new Ljungstroem method, a system of electrically heating the shale beds, through which some production directly from the beds already has been obtained.

Production of oil by the usual methods of excavating the shale necessitates the carrying of vast amounts of the shale for every ton of oil, inasmuch as the Swedish deposits have a comparatively low oil content, ranging from 4 to 7 percent. The advantage of the Ljungstroem method is that it eliminates the quarrying operations, and offers possibilities of larger-scale production. The production by this method will require a substantial supply of electricity, however, and at present Sweden's water-generated power is hardly sufficient for ordinary consumption.

Sweden's shale oil production is confined largely to output of fuel oil and gasoline, the yield of fuel oil being about 85 percent. Some high grade aviation gasoline production also is obtained.

The principal by-product of the distillation process is sulphur, and there is recovery also of small amounts of the rare metals, mainly vanadium, molybdenum, and radium.

Sweden was scheduled to have in operation by the middle of this year 20 retort charcoal furnaces in different parts of the country to begin producing about 8000 metric tons annually of tar from wood. The tar is to be used for motor fuel for the fishing fleet. The plants were being built by the Svenska Gengasaktiebolaget. Each furnace has an annual capacity of 15,000 cubic meters of wood, and from each cubic meter of wood are produced about 23 kilograms of A-tar, which is insoluble in water and which is used as diesel fuel, and 15 kilograms of B-tar, which is soluble in water and employed for impregnating purposes, as a wood preservative, and for similar uses. Besides charcoal and the tar, products made include turpentine and methanol, although maximum production of tar is sought.

Sweden also has been experimentally producing lubricating oils from crude destructive-distilled pine tar from tree stumps. It has been found that an oil with good lubricating quality can be produced satisfactorily for simple lubrication in industry. The lubricant is not satisfactory for internal combustion engines, however, because of thickening and being converted into resinous layers in the engines. The product does not solve Sweden's lubricating oil shortage problem, although alleviating it somewhat, as its cost is higher than that of mineral oils, while large scale production is precluded by the shortages of labor and transportation facilities.

India Uses Vegetable Oils As Lubes; Alcohol for Power

In meeting the problem of the shortage of petroleum products, due to shutting out of imports, India soon will begin production of power alcohol in Bombay Province, and now is paying increased attention to domestic vegetable oils as substitutes for lubricants made from petroleum.

India at present is consuming about 8000 tons of castor oil and 1500 tons of blown rape oil annually on the railroads, while about 6000 tons per year are consumed in sugar and ginning factories and in oil, rice, and other mills. However, complete replacement of normal lubricant requirements by vegetable oils in all suitable applications would involve the use of 46,000 tons annually.

Well refined castor oil has proved a first class lubricant for locomotives, bearings of steam engines, and heavy gears. Blends of blown rape oil and mineral oil are used to lubricate axles of railway passenger cars and freight cars and as marine engine oils. Peanut oil blended with mineral oil is used to lubricate compressors, gas engines, and looms, while coconut oil also is used for looms.

Arrangements were made in 1941 to substitute 8000 tons of castor and blown rape oils for mineral axle oils in the Indian railways, and this use has absorbed practically all production of suitable castor oil.

Blends of castor and rape oils have satisfactorily lubricated gears and bearings and served as cylinder oils for steam engines. Motor cars have been satisfactorily operated on blends of castor oil with either peanut or rape oil as lubricants.

Oil companies are reported to be considering the possibility of marketing mixed blends of vegetable and mineral oils, in a program that would require probably from 12,000 to 15,000 tons of castor and rape oils.

Denmark Oil Shortage Continues Acute

Gasoline is practically unavailable in Denmark, according to recent reports from Europe, and supplies of kerosine are extremely short. Coal gas has been strictly rationed. Use of electricity has greatly increased in consequence of the fuel shortage, but supplies of fuel for the electric plants also are short, and during the past winter, as in previous years, electricity was rationed.

Crude Production Rising In Northwestern Canada

In reflection of the wartime development in the Northwest Territories, crude oil production in that portion of Canada currently is of fairly impressive proportions in comparison with the negligible output of a year ago. In April of

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this year the production in that region amounted to 19,692 barrels, against only 2 barrels in April of 1942.

For the first 4 months of this year the production of the area totaled 57,729 barrels, compared with 131 barrels for the corresponding period last year.

These figures are from the latest monthly report just issued by the Dominion Bureau of Statistics.

The report showed that all Canadian crude petroleum production in April amounted to 837,072 barrels. That quantity brought Canada's production for the first 4 months of 1943 up to 3,338,939 barrels of 35 gallons.

Alberta production from the Turner Valley field still accounts for the bulk of Canadian production. It amounted to 3,022,566 barrels for the first third of 1943, as compared with 3,269,536 barrels in the first four months of 1943, a decrease of 7.5 percent.

Wildcatting Against Odds Contemplated in Spain

In the face of disappointing results in prospecting the area in the past, additional exploration in the Province of Soria in Spain now is contemplated.

The Spanish petroleum monopoly has been granted prospecting rights for mineral oil in a district covering about 10,000 acres. The area involved is bounded roughly by the villages of Calatanazar, La Cuenca, and Abejar, located in the region of the Sierra de Cabrejas.

No information is available to indicate that the proposed prospecting will be more successful than the extensive but none too successful explorations of the past.

Germans Increase Use of Town Gas for Motor Fuel

In their efforts to relieve the shortage of motor fuel, the Germans are reported to have increased their use of compressed town gas ("Permagas"). Numerous filling stations have been opened in Western Germany for distributing this gas, it is stated.

At the stations, the gas is compressed to 350 atmospheres, and from 250 to 300 vehicles can be serviced per day.

A. G. der Kohlenwertstoffverbande, the company putting this fuel on the market, is said to have plans for opening many more stations in the early future.

France Extremely Short Of Petroleum Products

Various measures are being taken in France to relieve the extreme shortage of petroleum products, but the country must continue to experience stringent restrictions on its use of them. Further restrictions on commercial road transport have been forecast, in view of the very tight oil supply situation.

Only disappointing results have been obtained in the drilling operations of the Societe Nationale de Petrole d'Acquitaine, with the consequence that authorities henceforth are expected to devote the most of their attention to solid fuels as a means of meeting the oil shortage. Accordingly, the use of producer gas equipment for powering vehicles will be increased. Some increase in production of synthetic motor fuels also is expected.

Lubricants are very urgently needed, and to provide French railways and other users with substitute lubricants, farmers are being encouraged to plant oilseeds.

Eire Drastically Cuts Petroleum Consumption

Although there has been some relief for Eire from the extreme shortage of petroleum products, it is anticipated that extraordinary scarcity will continue, in reflection of greatly reduced deliveries. Only the arrival of limited stocks some time ago made it possible to keep from putting into effect orders that had been drawn up calling for drastic reductions in gasoline, including contemplated discontinuance of public transport services.

Eire's imports of gasoline amounted to only 17,800,000 gallons in 1941 and 13,750,000 gallons in 1942, compared with normal consumption of about 44,000,000 gallons annually, according to the Minister of Supplies of the Irish Government. Thus the country was using only about 40 percent of normal volumes in 1941 and a little over 30 percent of normal in 1942.

Supplies of fuel oil also have been reduced more than 50 percent.

U. S. Field Operations

Illinois Basin

White County Wildcat Showing Oil from Benoist

Whisenant and Trenchard's Owen 1, SW NW NW 18-4s-14w, 1½ miles west of the Calvin pool in White County, had 1500 feet of oil in the hole after a 100-quart shot in Benoist sand at 2810-53 feet. The operators were preparing to put the test on pump.

E. J. Kubat's Johnson 1, NW SW NW 19-4s-11e, has been completed as a small producer to extend the Phillipstown pool 1 mile north. The well pumped 35 barrels of oil and 65 barrels of water in 24 hours after a 9-quart shot of nitro in Degonia sand at 1981-2036 feet.

Edwards County: Illinois Producing Company has opened a new field near the village of Blood by completion of H. C. Barbre 1, E½ NE SW 4-1n-10e. The well pumped 83 barrels of oil in 24 hours from McClosky after perforations and 500 gallons of acid at 3267-73 feet. The nearest other production is in the Bennington pool, 3 miles southwest of the discovery.

Wayne County: Buren and McGregor's Fee 1, NW SE 32-1s-7e, 1 mile west of the Boyleston pool, is waiting on casing, preparatory to testing a show of McClosky oil. On a 90-minute drill-stem test at 3274-81 feet, 35 feet of oil and 30 feet of mud were recovered. A show of oil also was found in the Aux Vases sand at 3167 feet.

Ohio Fuel Company's Mussbaum 1, NW SW 13-2s-6e, swabbed 617 barrels of oil in 24 hours after 2500 gallons of acid and casing perforations in the McClosky at 3308-16 feet. It opens a new field.

Another new field was opened by completion of Wisconsin Oil & Refining Company's Powless 1, NE SW 13-1n-5e, 1 mile north of the one-well Johnsonville West field. The well pumped 36 barrels of oil in 24 hours from Aux Vases sand, shot with 90 quarts at 2968-80.

Coles County: Anthony B. Keating's Uphoff 1, SE NW NW 25-12n-7e, ½ mile south of Mattoon in wildcat territory, was swabbing about 4 barrels of fluid an hour of which 40 to 50 percent was water. The productive zone is the Aux Vases sand at 1995-2063. It is believed the well will be completed for 30 to 40 barrels a day.

Madison County: Eason Oil Company's Mayer 1, SE NW NW 15-4n-6w, a wildcat in the village of Marine, was cleaning out, preparatory to testing Devonian lime at 1735 feet. The test was plugged back from dry Trenton lime.

Clinton County: Black and Pearson's Kluth 1, SW SW SW 22-2n-1w, a wildcat 1 mile south of Shattuc, was testing a light show of oil in Cypress sand at 1232 feet.

Indiana

A. J. Hammer and Kingwood Oil Company's Templeton 1, C NW SE 19-8s-13w, Posey County, abandoned at 2750 feet. Starting at surface elevation of 354 feet, Lower Glen Dean was topped at 2064 feet, Golconda at 2143 feet, Ste. Genevieve 2567 feet, and St. Louis at 2747 feet.

Vanderburgh County: W. F. Lacy and A. L. Cochran's Frank Fickas 1, SW SW NW 11-7s-10e, three miles east of Evansville, abandoned at 2380 feet.

Kentucky

Carter Oil Company's Russelburg 3, E½ SW SE 24-P-21, Union County, 3 miles north of Waverly and 1½ miles from other production, was completed in Waltersburg sand at 1700-13 feet for initial production of 182 barrels a day, natural without shot.

Henderson County: Carter Oil Company's DeVasier 1, NE SE SW 24-O-24, in Robards area 8 miles south of Henderson and 2 miles from nearest production, was bailing to test McClosky at 2500-06 feet, which on drill-stem test showed 1450 feet of clean oil in two hours.

A. L. Cochran and Delta Drilling Company's Mann 1, SE NW SW 21-R-23, 3½ miles north of Henderson, was fishing for drill pipe at 2385 feet after coring streaked, non-commercial saturation in Cypress section at 2092-2114 feet.

Farm Bureau Federation's Sand Island 2 (L. F. Boone fee), 3-Q-20, wildcat 1 mile up Ohio River from Mt. Vernon, Indiana, was drilling at 2313 feet.

Kansas

Ellis County Discovery Rated 1332 Barrels

Nate Appleman's Ellis County discovery, Richards 1, SE SE SE 19-11s-18w, which is producing from Arbuckle lime has been given a potential of 1332 barrels daily.

The well, drilled on Continental Oil Company farm-out acreage, is 3½ miles west of the Burnett pool and 4 miles south of the Richards pool.

Cowley County: Northern Ordnance Inc. is testing Ramey 1, C NW SW 20-33s-8e, near the Hooser gas pool. Mississippi lime was found at 2776-85 feet and produced 15 barrels of oil a day natural. The well is expected to make a greater yield when tubing is run and tests are completed.

Saline County: A new pool for eastern Saline County is in prospect with production from Kansas City lime. Wolf Creek Oil Company's Karber 1, SW SE 9-16s-1w, topped pay at 1989 feet and bailed 1½ barrels of oil per hour. Total depth is 1998 feet. Lower horizons will be tested if the Kansas City fails.

McPherson County: Shallow Water Refining Company's Boyd 1, C S½ SE SW 20-17s-1w, has opened a new pool with a minimum potential of 25 barrels daily. Production was found in chat at 2650 feet with total depth at 2669 feet.

Barton County: Eduoard Jonas et al Ames 1, SE SW SE 22-18s-11w, is a Lansing-Kansas City lime pool opener and has been assigned a minimum potential of 25 barrels daily. The well first was considered a possible Arbuckle lime producer but was completed in Lansing-Kansas City after casing was perforated. Lansing was topped at 3023 feet and Arbuckle at 3308 feet.

Russell County: A temporary potential of 154 barrels has been assigned to Mid-Plains Oil Company's Sellens 1, SWc SE NE 22-15s-13w, a recent discovery. It is producing from Lansing lime topped at 3033 feet and yielding 5 per cent water.

Oklahoma

Washita County Discovery Still to Be Evaluated

Gulf Oil Corporation's Hopkins 1, C NW SE 8-8n-20w, is a pool opener for southeastern Washita County and although early production tests were disappointing interest in the area is still running high and additional exploration in the area no doubt will result.

The well was definitely established as commercial when after several days of testing it flowed 87 barrels of oil. It made 125 barrels one day during tests but it is not expected to be completed at that figure. It is on the north flank of the Wichita uplift and on the south side of the Anadarko basin.

Meanwhile, in view of the discovery, interest is increasing in Gulf Oil Corporation's Perkins 1, C SE SW 31-8n-17w, another Washita County wildcat about 20 miles east of Perkins 1. Production at the discovery is from Granite wash at 5552-67 feet.

Osage County: Northern Ordnance Inc. has made locations for 15 wells on the 160-acre tract for which it recently paid W. A. Davidson $100,000. Located in SW 6-20n-12e, the tract now has one well, the discovery, which is still being tested. Production at the discovery is from Bartlesville sand at 1506-24 feet. Loose sand following a shot has caused pumping difficulty but the well is expected to be completed for 40 to 50 barrels daily.

Okfuskee County: Sunray Oil Company has work underway at Replogle 1, NEc NW 24-12n-8e, a west offset on a 200-acre block, to Midco Oil Corporation's Community 1, NE NW NE 24-12n-8e, which is an important Cromwell sand discovery. Community 1 has been given a state temporary potential of 1700 barrels daily from pay at 3496 to 3504 feet. Meanwhile the well is shut in for pipe line connections.

Garvin County: Stanolind Oil & Gas Company has given the Pauls Valley field a slight southern extension with Cashion Community 1, NW NE SW 31-4n-1e, which showed oil and gas on a drill-stem test at 4062 feet. Operators planned to core deeper before running pipe.

Seminole County: A new pay for the Northeast Wewoka pool is in prospect as a result of tests at Jordan Petroleum Company's Orr 2, NW NE SW 16-8n-8e. Slated for Hunton lime, producing horizon of the pool, oil in commercial quantities was encountered in Gilcrease sand at 3,104 with total depth at 3,122 feet.

West Texas

Andrews County Wildcat Has Gas Show in Mississippi

Magnolia Petroleum Company's Ralph 1, Western Andrews County wildcat, 8 miles west by south of Fullerton field, recovered 250 feet of mud with nominal show of gas when tester was used in porous lime carrying oil stain and odor at 8158-8223 feet. This zone is below the Clear Fork, and possibly is the Misssissippi. Operations were halted for rig repairs. Union Oil Company's Biles 1, 4¾ miles northwest of Fullerton field and on the same production trend, entered Clear Fork at 5980 feet, with elevation of 3381 feet, and was drilling at 6310 feet. Fullerton field discovery entered Clear Fork at 5620 feet.

Pecos County: Standard Oil Company of Texas' Smith-Douglas 1, southwest edge of Yates field, was preparing to perforate 7-inch, landed at 8915 feet, in Ellenburger saturation at 8900-30 feet, while more promising pay from Waddell sand in Basal Simpson is at 8787-8731 feet. Phillips Petroleum Company's Price 1, wildcat in the southeast part of the county that stirred up a big lease-buying program on strength of a gas show at 11,555 feet, was fishing at 11,640 feet.

Reagan County: Skelly Oil Company's University 1-L, northwest edge of Barnhart field, recorded a record potential of 2454 barrels through 1-inch and ¾-inch chokes after acidizing with 5000 gallons through perforations at 9120-75 feet in Ellenburger, topped at 9010 feet. Amerada Petroleum Corporation's Johnson 1, a mile northwest of the field discovery, was drilling dry Ellenburger at 8989 feet with 5½-inch at 8961 feet. Electrical formation survey discounted production possibilities of oil and gas shows passed up in Clear Fork.

Gaines County: Stanolind Oil & Gas Company's American 15, Cedar Lake pool Ellenburger project, was drilling dry lime at 10,255 feet. Amerada Petroleum Corporation's Robertson 6, east edge of the Seminole field, was drilling lime at 7796 feet. No shows below regular pay have been recorded by either test.

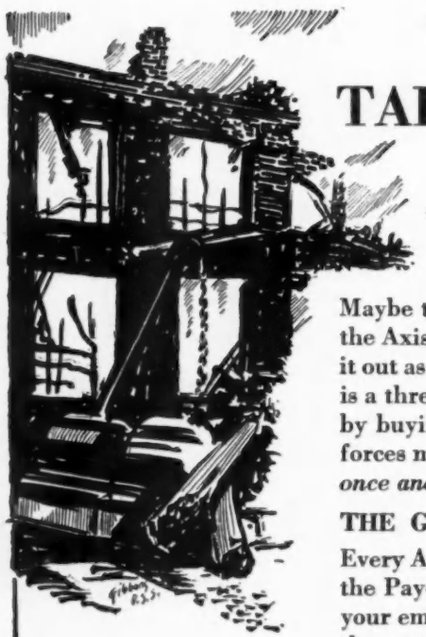
Crane County: Magnolia Petroleum Company's Glenn 2, ¼-mile southwest of its McKee pool flowing discovery, restored this Ordovician sand area to an important rating in recovering 4600 feet of oil with gas flow of 310,000 feet on 30-minute drill-stem test at 6113-21 feet. Top of McKee sand member of Simpson was logged at 6111 feet, 3 feet high. The company's Tucker 1, northeast offset to the discovery, abandoned in Ellenburger at 6950-7204 feet.

Winkler County: Development of the trio of prolific Ellenburger pools opened in this country in recent months promises to attain sizeable proportions. Sinclair Prairie Oil Company has awarded contract for Walton 4-A, ¾-mile northwest of the Keystone-Ellenburger discovery, and will be the first of a half dozen projected tests to get under way. Magnolia Petroleum Company has 2 active rigs in the Kermit-Ellenburger pool. In the Wheeler-Ellenburger area, Superior Oil Company (California) authorized 4 tests, including a north offset to the discovery. Stanolind - Shell's Wheeler-Sun 1 is spotted ½-mile west of the partnership's discovery, which has been delayed in making official test until lease tanks are emptied by trucking oil to Shell Pipe Line Corporation's Goldsmith field station. Approved locations in the Keystone and Wheeler deep areas confirms the 40-acre spacing, although some of the owners of large tracts sought 160-acre drilling units.

Hale County: Amerada Petroleum Corporation's Kurfees 1, projected 11,000-foot test, was running protection string of 8⅝-inch at 5252 feet.

Wildcat Test to Be Drilled In Early County, Georgia

A wildcat test is to be started immediately by Mont Warren and Roy Robinson, near Donalsonville, Georgia. The well, A. C. Chandler, is located 250 feet north of the south line and 968 feet west of the east line of the north one-third of Lot No. 406, of the 26th Land District of Early County, Georgia. The drilling contractor is W. B. Hinton, of Lockhart, Texas. Preparations are being made to test to 9000 feet.



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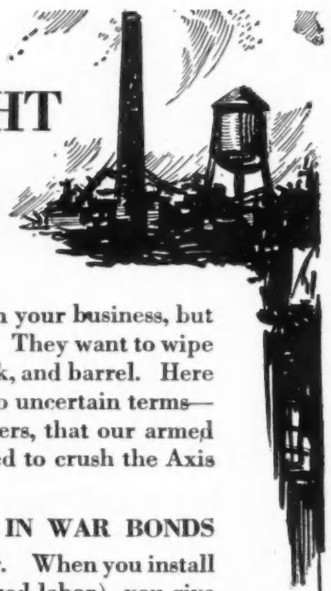

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East Texas

Second Smackover Test In Hunt County Quits

Smackover explorations along the Mexia-Talco fault trend in East Texas eliminated a Hunt County prospect, and the Kaufman County test of Sun Oil Company on the Rutledge tract, E. Parson survey, was nearing its objective in coring dry Cotton Valley formation at 8755 feet. Humble Oil & Refining Company's Graham 1, Wieland area, Hunt County, abandoned at 9409 feet in Smackover, topped at 9015 feet after failing to recover drill pipe stuck at 9066 feet. This is the second Smackover failure for the county.

Wildcats: Humble Oil & Refining Company's Wright 1, Morris County, was drilling basal Trinity at 7360 feet. In Wood County, Superior Oil Company and Dick Andrade's Carlisle-Farris 1, near Mineola, was drilling shale at 6880 feet.

Robertson County: Magnolia Petroleum Company's Doremus 1, Calvert faulted structure, recovered 1500 feet of salt water when tester was used at 7011-28 feet in Travis Peak, topped at 6895 feet, and was drilling hard sand at 7170 feet. This wildcat passed up nominal show of oil and gas at 1911-16 feet, and logged oil stain and odor in Edwards and Pettit, topped at 4699 feet and 6690 feet, respectively, thus lending encouragement for additional exploratory work in this county.

Van Zandt County: Hunt Oil Company's Parker-Pure 1, 3½ miles northeast of Edgewood, retained its favorable structural position in logging Goodland lime at 6065-6125 feet followed by dry Paluxy sand, which failed to indicate oil or gas in coring to 6190 feet.

Wood County: Jackson-Fisher & Fields' McCarley 1, Oak Grove prospect, will be plugged back for completion in Woodbine, topped at 5253 feet, after testing water in Paluxy section at 7284-7506 feet with elevation of 478 feet. This deep-seated structure is expected to yield abnormally low-gravity crude, based upon core analysis, from the thick section of Woodbine sand passed up in reaching depth contract. Electric survey listed top of Georgetown at 5998 feet and Fort Worth lime at 6660 feet with Goodland zone at 7205-81 feet.

Manziel Pool: Amerada Petroleum Corporation's Rogers 1, northeast of the discovery, swabbed 33 barrels of 32.1-gravity oil on 4-hour test from Paluxy perforations between 6300-42 feet, and will be equipped to pump. Magnolia Petroleum Company's Bailey-Howle 1, south offset to the discovery, logged pay at 6306-12 feet, and halted at 6340 feet in hard sand to complete through perforations, and Johnson 1, east offset to the discovery, missed the regular pay and was drilling sandy-shale at 6410 feet.

Long Lake-Cayuga Fields Ordered to Close Wells

The Texas Railroad Commission has issued an order closing down the Long Lake and Cayuga fields in East Texas July 15. Excepted are wells which are connected to gasoline plants from which the residue gas is used for pressure maintenance.

This is the first order of its kind issued by the commission and is designed to prevent waste of gas. Much low-pressure gas is being vented which the commission believes could be compressed and sold for light and fuel.

Equipment is on the ground in the field, the commission believes, and if the gas purchasing companies desire to cooperate, all of the wasted gas can be saved for useful purposes. These companies had about eight days in which to cooperate before the order becomes effective.

Railroad Commissioner E. O. Thompson took occasion to point out that this was probably the beginning of an active gas conservation program on the part of the commission.

"So much attention has been paid to oil in the past that many people have perhaps overlooked the more important gas. For example, in West Virginia where the gas is playing out, gas contracts are being made currently for the sale of gas at 18 cents per thousand feet at the well. With America looking at the bottom of the barrel, so far as oil reserves are concerned, and with new discoveries coming in slower than we consume this vital product, it is well for us to exert every possible effort to prevent any waste of natural gas.

"The gas reserves of America today are 93 trillion cubic feet, the equivalent of an oil reserve of 18 billion barrels. This closely approximates the total known oil reserves of the nation.

"There is a method, known as the Fischer-Tropsch process, by which methane, a dry gas, can be converted into gasoline at a cost ranging from 9 to 12 cents per gallon. Gasoline being refined from petroleum today is selling for 5 cents per gallon.

"Thus it can be seen that it is important for us to first discover as much oil as we can, then keep our natural gas in reserve as a substitute when the oil has played out, or when the quantities that can be produced without waste or harm to the fields is not great enough to supply the national demand.

"That day is not far distant unless a great impetus is given to producers to discover new oil fields. The best incentive is an increase of 35 cents in the price of oil, which has been recommended so generally by almost everyone for so long.

"Recently OPA approved a 25-cent increase for California crude and there was an immediate increase in drilling of 52 percent. This result obtained in the last two months proves conclusively again that a price increase always increases drilling, and increased drilling in the past has always brought new discoveries."

Bammel Field Gas Production Prorated

The Texas Railroad Commission has issued a gas proration order for the Bammel field, Harris County, limiting production to 20,000,000 cubic feet of gas daily for light and fuel purposes.

Provision is made for 160-acre proration units and allowables are to be distributed one third on potential and two-thirds on acreage and pressure. All gas produced must be processed before the residue is used for light and fuel.

Yates Water Hearing Reset for July 28

The Texas Railroad Commission has postponed until July 28 its hearing on the Yates field, Pecos County, to consider proposals to control salt water production in the field. The hearing was set for July 7 originally.

North Texas

Two Wichita Falls Tests Plug Back from Ellenburger

Two wildcats near the edge of Wichita Falls have been plugged back to try for completion in Strawn after meeting Ellenburger contracts. Continental Oil Company's West 1, G. W. Scott Survey, 2 miles northwest of town, plugged back from barren Ellenburger at 5520-5687 feet to test broken saturation in sand at 4245-63 feet. Consolidated Oil Company's Laukhuf 1, southeast of the city, logged Ellenburger at 5327-5401 feet, then set pipe at 4950 feet to perforate in broken saturation at 4780-4803 feet.

Archer County: L. T. Burns et al's Ickert 14, Block 17, Isaac Holeman Survey, near the Young County line, logged probable oil-producing zones in Bend at 4453-65 feet and in Mississippi at 5052-5138 feet, and has set pipe. The latter zone is about 10 feet high to Burns et al's Dashe 1, nearby 5163-foot failure that failed to test Bend or Mississippi zones. Gulf Oil Corporation's Parish 1, C SE NW ATNCL Section 97, tested salt water in Bend at 4875-98 feet, and was drilling at 4915 feet. Top of Bend is 130 feet low to Frank Buttram's O'Donohoe 1-B, 1 1/3 miles southwest and showing production possibilities after acidizing perforations at 4970-80 feet. S. D. Johnson et al's Coleman 1, 3 miles northeast of Scotland, set pipe on top of conglomerate saturation at 5697-5716 feet in Bend, topped at 5466 feet. Drill-stem test at 5699-5716 feet yielded 30 feet of oil- and gas-cut mud.

Young County: Standard Oil Company of Texas-Hanlon & Buchanan's Donnell 4, Murray pool, established Bend production in flowing 6 barrels of oil hourly through choke on 24-hour test from perforations at 3745-50 feet. Acid treatment will follow. This partnership's Wells 1, 2 miles east by south of Holbert pool, proved dry in Mississippi at 4662-4851 feet, and plugged back to try for completion in Strawn saturation at 3571-83 feet.

Clay County: L. T. Burns et al's Thompson 1, Block 29, San Augustine University Survey, confirmed favorable structural position in recovering 30 feet of oil-cut mud from conglomerate saturation at 5580-5600 feet in Bend, topped at 5533 feet, or 9 feet high to Continental-Omohundro's Stephens 1, recent Mississippi discovery 2 miles east by south. Thompson 1 is 3/8-mile northeast of Burns et al's Lyles 1, abandoned in Ellenburger at 6298 feet without testing saturation in Mississippian. L. T. Burns et al's Lumpkin 1, southwest offset to big well on the north edge of Joy, the structure, entered Mississippi at 5890 feet, 84 feet high, and cored saturation to 6022 feet.

Montague County: Continental Oil Company's Silsbee 1, south edge of the Hildreth pool, proved dry in Simpson at 7218-70 feet, and plugged back to complete in Bend conglomerate at 6077-6123 feet and 6270-92 feet. Sinclair Prairie Oil Company's Middleton 1, southeast of the discovery, flowed oil when tester was used at 6049-92 feet, and was to run tester at 6267 feet in lower pay. Stanolind Oil & Gas Com-

pany's Reed 1, 1 2/3 miles southwest of Nocona (Rogers) pool, recovered 290 feet of oil- and gas-cut mud, with 2200 pounds bottom-hole pressure when tester was used at 5741-65 feet in Simpson, topped at 5720 feet. This wildcat was drilling at 5785 feet in Ellenburger, entered at 5765 feet. It involves a separate structure.

Osage Lease Sale

Auction of Osage Indian oil leases will be held at 1:30 p.m. July 21, at the Osage Agency, Pawhuska.

Included in the lands offered for lease is NW 6-20n-12e, which adjoins a quarter on which Bartlesville sand production recently was discovered.

Forty-two tracts totaling 6620 acres will be offered at the auction.

Southwest Texas

New Field Indicated In Jackson County

Jackson County is back in the development spotlight with a production test being made on a wildcat two miles southwest of Mustang Creek field. This area was unusually active in the latter part of 1942 and the first portion of 1943 with a number of new and shallow fields opened to produciton. The new discovery was drilled by George W. Strake of Houston and is a deep well for the county. The well is Sheblak 1 with the hole bottomed at 7010 feet and 5½-inch casing set to the 5700-foot level. Operators set casing after running electrical survey to the 5700-foot horizon and then taking sidewall samples.

Duval County: H. J. Porter of Houston recovered some oily mud and gas on a drill-stem test in Robinson 1, wildcat 2 miles southeast of Fitzsimmons field. The saturation was topped at 4647 feet and it was this level that yielded the mud and gas. Two tests were made slightly deeper in the hole but the recovery was only oily mud and water. This well is being watched as a possible new field opener or a major extension to the Fitzsimmons field. It is located in south end of AB&M survey 296 on a Sun Oil Company farmout.

Jim Wells County: Humble Oil & Refining Company has completed the second well in the North Magnolia City area as a gas producer. Nina Adams 1 was perforated at 5124-40 feet and flowed 2,000,000 cubic feet of gas through 3/16-inch choke. Total depth is 6964 feet with casing set to 5198 feet.

In the Santa Rita area of Jim Hogg County, Humble has pulled casing to abandon Mestene 4-B, wildcat 11 miles south of Hebronville. The hole was drilled to 5700 feet and 5½-inch casing set to 4622 feet. Perforations were made at 4550-60 feet but to no avail.

Development in the Yeager area of Jim Hogg County received a setback when M. L. Massingill abandoned his second well and a west offset to the discovery. The hole is bottomed at 3781 feet. Shaley sand was topped at 3728 feet, and in a test at 3726-39 feet the recovery was only 20 feet of mud. However, Humble has staked a location as a east offset to Magnolia Petroleum Company's Barfield 1, which is a north offset to the Yeager 1 discovery. Magnolia drilled Barfield 1, 1050 feet north of the discovery, to 3768 feet, set 7-inch casing to 3750 feet. Oil sand was found at 3750-60 feet in the O'Hearn discovery pay.

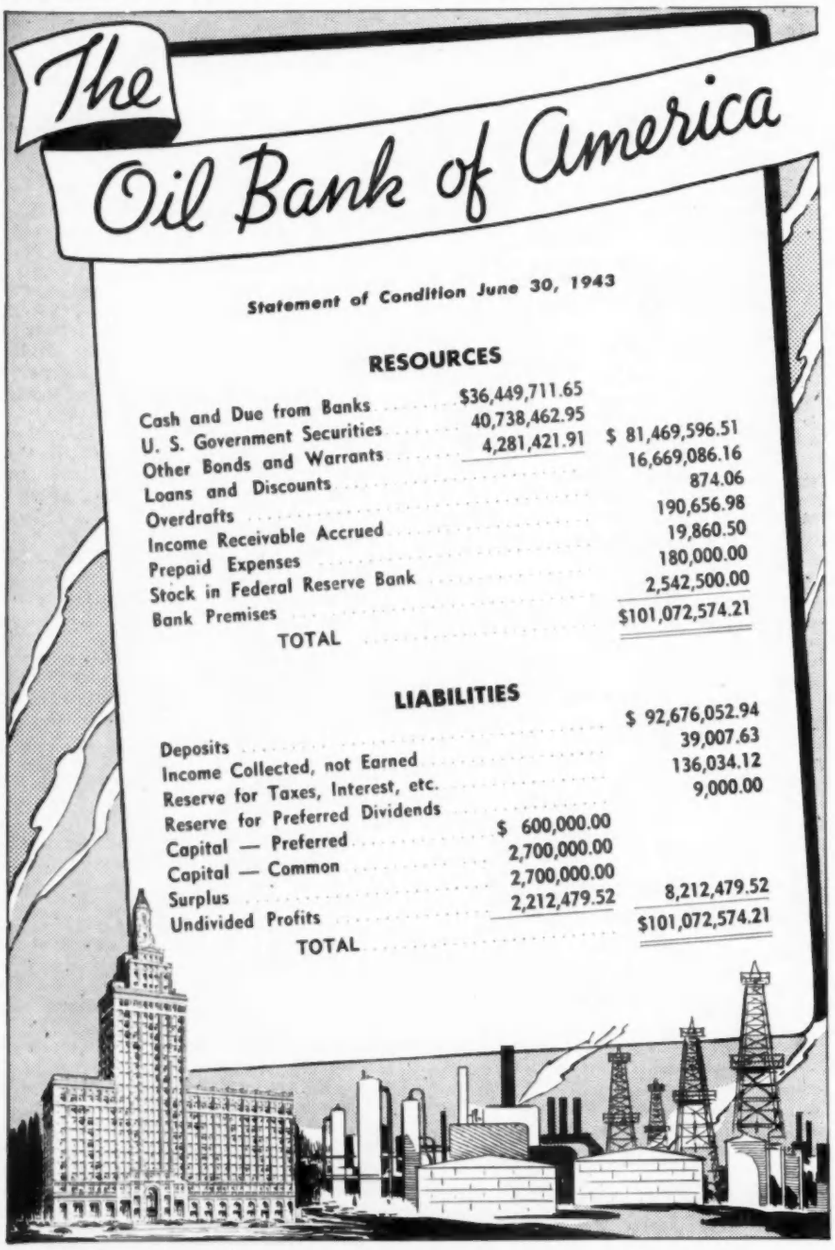
Discovery: H. R. Smith and H. J. Mosser have completed a wildcat southwest of Orange Grove townsite in Jim Wells County as a gas-distillate producer. The well, Ehlers 1, is a half mile north of Thiel field. Perforations were made at 3436-45 feet and the hole is bottomed at 5027 feet with 5½-inch casing set to 3460 feet. The well failed to show for production in the Vicksburg at 4922-30 feet. The gas sand was topped at 3436 feet.

Texas Gulf Coast

Colorado County Deep Wildcat Reports Shows

A Wilcox wildcat that is drawing attention and which already has found two shows is being carried to a record depth for the area. It is Magnolia Petroleum Company's Anderson 1, two miles southwest of Chesterville in Colorado County, drilling below 11,680 feet, and to be carried to 12,500 feet although the contract depth was for an 11,500-foot test. If its objective is reached, it will be the deepest Wilcox penetration in the area. Gas-distillate shows were found in the Cockfield and in the top of the Wilcox. Details as to what has been found deeper inside the Wilcox have not been revealed. This discovery is in south corner of GH&H 15.

Discovery: John Mayo, Kirby Petroleum Company and Wynn Crosby Drilling Company have completed potential gauge on Jackson 1, gas-distil-


The Oil Bank of America
Statement of Condition June 30, 1943
RESOURCES
Cash and Due from Banks $36,449,711.65
U. S. Government Securities 40,738,462.95
Other Bonds and Warrants 4,281,421.91 $ 81,469,596.51
Loans and Discounts 16,669,086.16
Overdrafts 874.06
Income Receivable Accrued 190,656.98
Prepaid Expenses 19,860.50
Stock in Federal Reserve Bank 180,000.00
Bank Premises 2,542,500.00
TOTAL $101,072,574.21
LIABILITIES
Deposits $ 92,676,052.94
Income Collected, not Earned 39,007.63
Reserve for Taxes, Interest, etc. 136,034.12
Reserve for Preferred Dividends 9,000.00
Capital — Preferred $ 600,000.00
Capital — Common 2,700,000.00
Surplus 2,700,000.00
Undivided Profits 2,212,479.52 8,212,479.52
TOTAL $101,072,574.21
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late discovery in the Jackson Pasture area of Chambers County. After perforations at 8102-08 feet, it flowed 84 barrels through ⅛-inch choke, tubing pressure 2900 pounds, casing 2500 pounds. The gas-oil ratio was 9100-1, with gravity being 62.2. This discovery is in John S. Roberts survey, Abstract 21.

Chambers County has been exceptionally active from an exploration and drilling viewpoint within the past six months. What really touched off the accelerated interest was the development of the Stowell area of Jefferson County into a major field. Geophysical work has been at a peak throughout the county, and a number of wildcats are due to get started soon.

Harris County: Kirby Petroleum Company has set flow pipe in Hillebrenner 1-0, well at North Houston. This well, regarded as an extension test, is bottomed at 7601 feet with 7-inch casing set near bottom. A drill-stem test was run to 6957 feet before drilling to the present depth.

Fort Bend County: Providence Oil Company has staked another north side extension test at Clodine. Contracted to 7600 feet, the well is on a 48-acre tract in L. Lopez survey, Abstract 37. This side of the field is being developed since a recent extension in this area. Previously the field was apparently defined to a few producers.

South Louisiana

Iberville Parish Wildcats Indicate Two New Fields

The coastal area received its most encouraging development in recent months with two new fields in prospect or at least one new field and a major extension. Both discoveries were drilled by George H. Echols.

The wildcat drawing most interest is Echols' Natalbany 1-J, 12-9s-1e, one mile west of St. Gabriel production in Iberville Parish. It found 40 feet of saturated Frio sand at 9700 feet. The hole is bottomed at 10,517 feet where water was topped. Production pipe is being set to make the first test in the 9700-foot horizon. This sand is different from that in the St. Gabriel field proper which produces from 7660 feet and 8600 feet. Although it is not definitely known, but it is believed Echols discovery will be called a new field instead of a major extension. The operator controls approximately 2100 acres in the area, Shell Oil Company also being interested in acreage. Echols completed his 10,500-foot contract before plugging back to make a flow test.

St. James Parish: The second well attracting interest is Echols' Realty Operator 2, 1¼ miles southwest of Convent dome. This discovery is regarded as highly important since it is opening flank production on a dome that has been dormant for a long time. The well blew out in the original hole, plugged back and sidetracked around 6100 feet. The second hole is bottomed at 9285 feet and pipe is due to be set to 9250 feet for first flow test. Although how much sand has been found is not definitely known, it is believed sufficient to make a commercial producer. Echols controls 2400 acres in the area with Shell Oil Company and Continental Oil Company owning some acreage.

Jeff Davis Parish: Stanolind Oil & Gas Company is running flow test in perforations at 8939-48 feet in Trimble 1, wildcat on the north flank of Welsh dome. The well, SE SW 16-9s-5w, is bottomed at 9150 feet with 5½-inch casing set to 9070 feet. This well is being watched closely since it will open considerable acreage to production if it flows oil.

Evangeline Parish: Danciger Oil & Refining, W. J. Wier and W. D. Haas are opening production on the Reddell prospect in Haas 1, wildcat now coring ahead in Wilcox. At last report operators were taking cores below 11,000 feet and still finding some sands showing saturation, some of the sections being 6 feet in thickness. Shows were encountered in the Sparta at 9718 feet.

North Louisiana

Bossier Parish Wildcat Has Showing in Pettit

A wildcat five miles southwest of North Carterville Pettit lime production in Bossier Parish, E. C. Johnston's Blocker 1, NE NW SW 1-22n-13w, drilled to 6519 feet, perforated lower Pettit lime and acidized at 6470-90 feet. In swabbing, it kicked off and flowed 35 minutes. Oil, oil-cut mud and acid water spilled over the double board when the flow was killed. Packer was set above the lower Pettit zone for a test in the upper porosity at 6430-52 feet. It was circulated down with acid water and oil but a test at this point

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was hindered since caving of shale was revealed from behind the casing. It was planned to clean out and acidize both Pettit lime sections simultaneously in attempt for final completion.

An outpost, more than one mile south of North Carterville, White and Hinton's Louisiana 1, SW NE 16-23n-12w, perforated Pettit lime at 6168-88 feet and at 6134-44 feet. In swabbing it recovered oil and acid water.

A wildcat, eight miles south of North Carterville, Carter Oil Company's Bolinger 1, SE NW 20-22n-11w, was building derrick preparatory to drilling for a test of deep Pettit lime.

Mississippi

Wildcat Has Three Shows in Wilcox

California Company's Natural Gasoline Company of Louisiana 1, wildcat in irregular Section 52-7n-1w, had three favorable sands in the Wilcox horizon during core operations in interval at 4126 feet extending 5784 feet with the best show revealed at 4370 feet. Elevation at 388 feet, it topped Vicksburg at 1882 feet and Sparta at 2950 feet. This wildcat was drilling below 7689 feet and is approximately 14 miles northeast of Pure Oil Company's deep Tuscaloosa strike, McDowell 1, SE SE 1-6n-4w. Nearest Wilcox production to California Company test is almost 18 miles northwest at Lake St. John, Concordia Parish, Louisiana.

California

Tejon Ranch Area Still Holds Out Lure

In a growing list of California wildcats now near objective depth, the one of most general interest probably is a new effort to find a structure on the great 55,000-acre Tejon Ranch, in southern Kern County. A prospective area that long has carried the recommendation of high-rated geologist counsel in impressive numbers, "The Tejon" has been drilled year after year the past decade, always with tantalizing showings but never with results to confirm that the elusive main structure had been found.

Richfield Oil Corporation several years ago tackled the problem in a big way, predicating a long-term and exhaustive exploratory drilling program upon results from surveys and research that employed nearly every form of technical investigation. Apparently early failures had been figured into the company's long-range plan because no sooner had a fresh try been completed as a duster than arrangements were under way to choose a site for a next venture. The present is the sixth start, after five failures. It is Tejon 4, NWc 34-11-19, now drilling below 3000 feet. The sand being sought should be topped in the neighborhood of 4000 feet.

Several semi-wildcats of high importance also are being followed closely, these being outposts at varying distances from discovery wells in the new Guijarral Hills field, Fresno County; the new Republic Pool pay extension (or new field) discovery in Midway-Sunset area, Kern County, and the Bering deep zone discovery, Del Valle field, Los Angeles County.

The list of locations for the week includes a single test of a flank area of the South Belridge low-gravity field.

Kern County: British American Oil Producing Company has accumulated leases preparatory to wildcatting what is regarded as very favorable territory northeast of Mount Poso production. The initial wildcat is planned for NW 34-26-28.

Kern Line Oil Company, following the lead of Richfield Oil Corporation is returning for another try in the Grapevine-Tejon area. Forty-five gravity oil was recovered in a formation test of a well the company drilled in 19-11-19 two years ago, but not in commercial quantities. The show was obtained in the interval 7530-7535 feet, after plugging back from 8390 feet. The company now proposes to clean out and deepen the hole to around 9000 feet in quest of Vedder equivalent.

Fresno County: Union Oil Company is undertaking a test of the possibilities of outlying precincts of the Old Coalinga field to the west of known production limits. The first well, 4-1, has been staked in NW NW NW 4-20-15.

Michigan

Drilling More Active But Results Not Flattering

Seventeen permits approved during the closing week of the first half of the year made June with 69 starts the best month of the year—about double starts reported for any of the first five months.

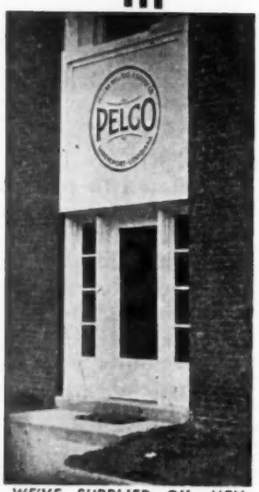
Pure Oil Company's Harris 1, E½ NE SE 8-14n-11w, Goodwell Township, Newaygo County, wildcat, flowed 189 barrels of oil the first 4 hours on test through open 5-3/16-inch casing from Traverse lime at 2740-42 feet. Traverse lime was logged at 2722 feet, elevation 1012 feet, with pay at 2730-32 feet and at 2740-42 feet. Hole is bottomed at 2724 feet. Location is 3½ miles south of Woodville pool, Newaygo County, on a structure worked out by extensive shallow core drilling during the past six months. Pure Oil Company, Cities Service Oil Company and Ohio Oil Company are chief lease holders in the area.

Osceola County: Union and Athas' Allen 1, S½ SW SE 31-19n-9w, Rose Lake Township, logged Dundee lime at 3751 feet (elevation 1278 feet) and drilled tight lime formation to 3818-20 feet where water was logged. Casing was pulled and hole reamed to 3830 feet, tentative top of the third objective, Monroe dolomite, where pipe will be reset and a production test made. Monroe is the chief producing horizon at Reed City, 7 miles southwest.

Newaygo County: Dry or small wells appear to confine Woodville pool to a small prospect and unless current operations open production on the north flank, activity probably will come to a standstill. Expansion of the 2800-2900-foot Traverse producing pool now appears cut off on all but the north side.

Supply Store for Short

They call us, for short, a supply store. As a matter of fact our job, for 35 years, has been to make the oil man's work a little less worrisome. In this business, if you think in terms of merchandise you don't get far. You remain—a supply store. But if you think about making the customer's job more pleasant, what to stock and how to sell it are problems that solve themselves. Business, since the war, is progressively more impersonal. The fact that we haven't drifted into that may account for the number of operators who TRY PELCO FIRST.



WE'VE SUPPLIED OIL MEN IN OUR AREA FOR 35 YEARS

PELICAN WELL TOOL & SUPPLY CO.

SHREVEPORT LOUISIANA

PELCO

Houston
Berwick
Houma
New Iberia
Lake Charles

United States Well Completions

ARKANSAS

Columbia County—Atlanta: C. B. Ragsdale's Longino-Talley 1, s½ sw 11-18s-19w, perf Smackover 8174-84 ft, flow 168 bbls, 12/64 in, td 8184 ft.

Johnson County—Silex: Arkansas Louisiana Gas Co.'s Hendrix 1, se 21-10n-21w, 2810-30, 15 qts nitro, flow 1,000,000 gas, rp 910, td 3255 ft.

Union County—New London: Marine Oil Co.'s Frost 8, nw se 12-18s-12w, perf Cotton Valley, flow 180 bbls, 12/64-in, td 5852 ft.

ARKANSAS WILDCATS

Columbia County—Failure: R. J. Hayden, Tr.'s Runyon et al 1, nw nw 14-16s-21w, abnd, 7657 ft.

Nevada County—Failure: Placid Oil Co.'s Bodcaw 1, se nw 18-14s-22w, abnd, 7180 ft.

CALIFORNIA

Fresno County—Coalinga, Old Field: Shell's 168-15, se sw se 15-19-15, pump 58 bbls 17.3-gr, perf 1715-1693, 1654-1531 ft, td 1716 ft.

Standard's 113-35A, se nw se 35-19-15, pump 24 bbls 20.6-gr, 102 ft perf, 3215 ft, td 3320 ft.

Standard's 119-13D, sw ne se 13-20-14, pump 48 bbls, perf 1155-1350, 1430-1583 ft, td 1589 ft.

Fresno County—Riverdale: Amerada's Courtney 34-23, sw se nw 23-17-19, flow no est, 62 ft perf 7915 ft, Kreyenhagen 7580 ft, McLure 5253 ft, Temblor 5540 ft, Domengine 8038-8117 ft, Cretaceous 8197 ft, td 8300 ft, pd 7914 ft.

Kern County—Cymric: Honolulu Oil Corp.'s Fitzgerald 62-26, sw nw nw 26-29-21, pump 43 bbls 13-gr oil, 77 water, perf 1113-1267 ft, oil sand 1113 ft, td 1288 ft.

Kern County—Belridge, South: Belridge Oil Co.'s 55A-34, nw ne se 34-28-21, pump 85 bbls, 304 ft perf 880 ft, td 880 ft.

Belridge's 65A-34, ne nw se 34-28-21, pump 60 bbls 14.3-gr oil, 20 water, 472 ft perf 1012 ft, td 1012 ft.

Chanslor Canfield Midway Oil Co.'s B. F. 11-6, se sw nw 11-29-21, pump 16 bbls 14-gr oil, 11 water, perf 998-1081 ft, td 1350 ft, pd 1081 ft.

General's Belridge 36-A-2, se nw ne 2-29-21, pump 74 bbls 13.7-gr, perf 604-694, 880-954, 995-1088 ft, td 3296 ft, pd 1090 ft.

Shell's Shell-T.W.A. 2, ne sw sw 1-29-21, pump 94 bbls oil, 21 water, perf 1028-1002, 985-942, 912-851 ft, oil sand 858-921 ft, td 1119 ft, pd 1030 ft.

Kern County—Buena Vista Hills: Standard's 55-27B, ne sw se 27-31-23, pump 162 bbls 25.5-gr oil, 63 water, perf 2988-3295, 3335-3385 ft Mulinia 2677 ft, Gusher 2987 ft, Calitroleum 3260 ft, td 3475 ft.

Standard's 103-11D, sw sw ne 11-32-24, pump 54 bbls, 60 ft perf 2860 ft, Scalez marker 2792 ft, oil sand 2800 ft, td 2862 ft.

Union's McLeod 20, nw nw se 34-31-23, pump 31 bbls 26.2-gr oil, 56 water, perf 3036-3066, 3194-3294, 3348-3362, 3579-3690 ft, Mulinia 3035 ft, Gusher 3372 ft, td 3697 ft.

Kern County—Elk Hills: U. S. Navy's 23-34s, ne sw nw 34-30-24, pump 275 bbls 18.3-gr oil, 45 water, perf 3100-3053, 3033-2999 ft, td 3102 ft.

Kern County—Greeley: Superior of California's Lewis 3, sw ne nw 12-29-25, flow 1507 bbls 37.4-gr, 28/64-in, 1125/0 lbs, perf 11,398-11,428 ft, Rio Bravo 11,404 ft, td 11,453 ft.

Kern County—Kern Front: National Oil Co.'s Standard 5, sw se se 15-28-27, pump 40 bbls 14-gr oil, 10 water, 268 ft perf 1900 ft, td 1903 ft.

Standard's 52, sw se se 15-28-27, pump 15 bbls 13.3-gr oil, 26 water, 263 ft perf 2275 ft, td 2275 ft.

Kern County—Midway-Sunset: C.C.M.O.'s 58-9, ne se nw 9-32-23, pump 33 bbls 20.1-gr oil, 12 water, 86 ft perf 3013 ft, td 3030 ft.

C.C.M.O.'s 62-9, se sw nw 9-32-23, pump 25 bbls 13.8-gr, perf 1811-1937 ft, top oil sand 1820 ft, td 1960 ft.

Doyle Petroleum Co.'s Equitable 1, sw sw sw 10-32-23, pump 20 bbls, 240 ft perf 2580 ft, td 2910 ft, pd 2580 ft.

Honolulu's E & M 8, sw sw sw 10-31-22, pump 66 bbls oil, 6 water, 146 ft perf 485 ft, oil sand 325 ft, td 531 ft.

Richfield Oil Corp.'s Fairfield 11, nw sw ne 11-31-22, pump 170 bbls 16-gr, 93 ft perf 1298 ft, oil sand 1218 ft, td 1339 ft, pd 1300 ft.

Texas Co.'s 21, nw nw nw 36-31-22, pump 49 bbls 18-gr oil, 15 water, perf 1207-1477, 1538-1558 ft, fine gray sand 1612 ft, first Mya 1915 ft, Etchegoin 1522 ft, td 1622 ft, pd 1560 ft.

Kern County—Poso Creek-Premier: L. C. Dougan's Atlantic-Sesnon 2, se se ne 17-28-27, pump no est, 63 ft perf 2969 ft, td 2979 ft, pd 2950 ft.

Honolulu's 78, nw se se 8-28-27, pump 6 bbls oil, 3 water, 28 ft perf 3038 ft, td 3061 ft, pd 3038 ft.

Los Angeles County—Brea-Olinda: Union's Stearns 78, nw se ne 7-3-9, pump 143 bbls 25-gr, 638 ft perf 3573 ft, td 3965 ft, pd 3575 ft.

Los Angeles County—Montebello: Standard's Baldwin 106, 661 ft nly 496 ft ely fr swc Baldwin ppty, 2-2-12, pump 29 bbls 19.1-gr oil, 19 water, 234 ft perf 2963 ft, td 2695 ft.

Los Angeles County—Torrance: C. H. Le Bow and George A. McNee's Dominguez Estates 10, 355 ft n, 60 ft w c/ls Victor and Huntington Sts, 5-4-14, pump 63 bbls 20-gr, perf 3193-3270, 3550-3677 ft, td 3690 ft.

Wood Callahan Oil Co.'s Domingues Estates 4, 567 ft nly 330 ft ely swc Dominguez Estates, 5-4-14, pump 35 bbls, poker chip shale 3216 ft, td 3664 ft.

Los Angeles County—Wilmington: Union Pacific's 219, 5665 ft s, 2565 ft e c/ls Ford and Anaheim Blvds, flow no est, 206 ft perf 4239 ft, td 4399 ft, pd 4345 ft.

Orange County—Huntington Beach: D. D. Dunlap Oil Co.'s H.B. 20, 220 ft s, 765 ft e c/l Garfield St and Huntington Beach Blvd 1-6-11, pump non-commercial, silty tight oil sand 3755-3743 ft, abnd 3780 ft.

Southwest Exploration Co.'s State J-10, 1899 ft wly along c/l Ocean Ave proj fr c/l 23rd St thence 123 ft nly at r/a, 3-6-11, flow 300 bbls, td 3490 ft.

Santa Barbara County—Santa Maria Valley: Union's Vicente 7, 990 ft s, 990 ft e nwc Vicente lease, 12-10-34, pump 417 bbls 15.6-gr, 390 ft perf 4715 ft, 187 ft perf 4885 ft, Franciscan 4832 ft, td 4885 ft.

CALIFORNIA WILDCATS

Kern County—Failure: Etienne Lang's Occidental 3-SW-29, nw ne sw 29-26-19, Devil's Den area, shale, Santos cored 35.94 ft, abnd 4215 ft.

Kern County—Failure: R. M. Kiesau's 1, se se se 24-28-28, Kern River area, Vedder 2323 ft, abnd gray sand 2415 ft.

Kern County—Failure: General's Bradford 1, nw se ne 15-28-28, Round Mountain area, Vedder 2683 ft, lower Vedder 2935 ft, abnd 2995 ft.

Kern County—Failure: Palomar Refining Co.'s Russell 1, sw ne 6-28-29, abnd Walker siltstone 1777 ft.

San Joaquin County—Failure: Bankline Oil Co.'s Community 22A-1, nw se se 22-4-7, Lodi area abnd 2725 ft.

ILLINOIS

Clinton County: H. A. Harmon's Vahlkamp 1, ne sw 1-2n-2w, water disposal, 2840 ft.

Texas Co.'s C. Murphy 6, se ne 2-2n-2w, Devonian lm 2705-07 ft, 414 bbls, 2707 ft.

Texas Co.'s Grey Community 10, se se 35-3n-2w, Dev lm 2604-70 ft, 2,500,000 gas, 2721 ft.

Franklin County: E. S. Adkins' Biggs 1, se se ne 25-7s-2e, Tar Spgs, 2085-96 ft, 119 bbls, 2096 ft.

Gallatin County: R. B. Martin et al's S. Rister 2, sw nw ne 15-8s-9e, abnd 2989 ft.

Hamilton County: Texas Co.'s Johnson 1, nw nw ne 27-6s-6e, pay 3092-3213 ft, 169 bbls, 3213 ft.

Jefferson County: British American's Chesnick 2, sw sw sw 26-2s-1e, Benoist 2002-09 ft, 19 bbls, 2009 ft.

Lawrence County: Dee Bros.' Mitchell-Lewis 2, ne se ne 27-2n-12w, Biehl 1370-92 ft, 30 bbls, 1394 ft.

Marion County: Texas Co.'s Hamlin 9, nw sw ne 4-2n-2e, McCl lm 2129-39 ft, 82 bbls, 2139 ft.

Richland County: Pure's Gertsch 1, se ne nw 19-4n-10e, abdn 3020 ft.

Wabash County: W. C. McBride's Standring 1, ne ne ne 19-1s-12w, Weller 2023-33 ft, 10 bbls, 2033 ft.

Case Pomeroy Oil Co.'s Hill 15, c sl sw 7-3s-13w, pay 2486-2512 ft, 68 bbls, 2372 ft.

Magnolia's Majors 1, ne se nw 34-1n-13w, abdn 2790 ft.

Wayne County: Texas Co.'s Talbert 6, ne ne ne 17-1s-6e, McCl lm 3143-47 and 3151-53 ft 306 bbls, 3174 ft.

White County: W. C. McBride's Anna 2, se se nw 6-4s-14w, Biehl 1517-62 ft, Penn 1088-1114 ft, 218 bbls, 2372 ft.

Central Pipe Line Co.'s Dennis 1, se ne se 15-4s-14w, abdn 2652 ft.

N. V. Duncan's Bisch-Metcalf 2, nw se se 31-3s-14w, Walts 2268-84 ft, 65 bbls, 2284 ft.

ILLINOIS WELLS DEEPENED

Wayne County: Welser Oil Co.'s Matchett 4, w½ sw sw 23-1n-6e, otd 3199 ft, Aux V, 85 bbls, 3230 ft.

ILLINOIS WILDCATS

Clark County—Discovery: J. E. Thompson's Cooper 1, sw sw sw 18-10n-14w, Casey 435-440 ft, 5 bbls, 465 ft.

Clay County—Failure: Mabee Drlg. Co.'s Klinger 1, sw sw nw 36-5n-8e, abdn 3153 ft.

Coles County—Failure: Oxner & Ball's G. Hedger 1, nw sw sw 6-12-11e, abdn 1004 ft.

Edwards County—Failure: Skelly 1 and Nelson Devl Co.'s Gumbrell 1, se se sw 3-1s-10e, abdn 3370 ft.

Effingham County—Failure: Watkins & Hawkins' Webster 1, nw se nw 34-6n-6e, abdn 2829 ft.

Fayette County—Failure: Bell Bros.' Viskniskki 1, ne sw ne 19-4n-10e, abdn 2574 ft.

Jefferson County—Failure: E. J. Ruwaldt's

Wells Completed in the United States in Week Ended July 10, 1943

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†In-put	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS *Oil	Gas	Dry	Total	ALL COMPLETIONS: This Week	Last Week	Cumulative: This Year	Last Year
Alabama													1	3
Arkansas	2	1			3				2	2	5	3	120	115
California	32			1	33				5	5	38	20	795	415
Colorado													10	5
Georgia													1	2
Illinois	11	1	1	4	17	1	1		9	10	28	24	922	1,041
Indiana	4			1	5						5	5	127	208
Kansas	18			8	26		1		5	6	32	43	853	852
Kentucky	2			2	4				5	5	9	7	161	78
Louisiana	5	5		2	12						12	14	323	559
North Louisiana	1	5			6						6	6	144	
South Louisiana	4			2	6						6	8	179	
Michigan	1	2		2	5				2	2	7	18	266	370
Mississippi												6	21	67
Missouri													10	16
Montana													106	87
Nebraska														26
New Mexico	5				5						5	4	133	215
New York	17		7	1	25						25	24	615	622
Ohio	2	10		14	26						26	16	457	582
Oklahoma	12			8	20		1		5	6	26	19	679	793
Pennsylvania	36	4	16	1	57						57	53	1,404	2,159
Tennessee													2	7
Texas	38	1	1	14	54	1	6	1	21	28	83	76	2,044	3,333
E. T. Bor. Co.'s												1	11	
E. Texas Field													4	
Rest of E. Texas	3				3						3	4	122	
North Texas	2			5	7				7	7	14	24	468	
W. Cen. Texas	3		1	3	7				5	5	12	8	179	
West Texas	16				16	1					17	15	461	
Tex. Panhandle	3	1			4						4		107	
G. Coast, Upper	4			1	5		2		2	4	9	7	158	
G. Coast, Lower	4			2	6		2		3	5	11	8	304	
S. West Texas	3			2	5		2	1	3	6	11	7	193	
S. Cen. Texas				1	1				1	1	2		35	
West Virginia		10		2	12	1					13	17	314	373
Wyoming													59	42
Total U.S.	185	34	25	60	304	3	9	1	54	64	371	349	9,423	11,970

* Includes distillate wells. † Includes salt water disposal wells.

Fitzgerrells 1, ne ne nw 10-4s-3e, abnd 2946 ft.

Shelby County—Failure: G. Wakefield's Krumreich 1, nw sw se 28-10n-5e, abdn 2165 ft.

Washington County—Failure: Texas Co.'s C. L. Kokesh 1, sw sw se 32-2s-4w, abdn 2485 ft.

Williamson County—Failure: Nash Redwine's Old Ben Coal Co. 1, sw ne sw 6-8s-3e, abdn 3002 ft.

INDIANA

Gibson County: R. D. Brown's Fee 7, se ne ne 35-1s-10w, Hds 1369-1400 ft, 16 bbls, 1402 ft.

R. D. Brown's Clem-Lehman 3, se ne nw 36-1s-10w, Hds 1357-67 ft, 17 bbls, 1380 ft.

Continental's Waier 59, ne ne ne 14-3s-14w, Cypr sd 2476-96 ft, 124 bbls, 2501 ft

Randolph County: John Seip's Keys 1, c nw sw 23-20n-14e, Trenton, 1092-1140 ft, 3 bbls, 1140 ft.

Vanderburg County: Illind Oil Co.'s Mahrenpolz 1, se sw sw 29-6s-11w, abdn 1905 ft.

KANSAS

Barton County—Kraft-Prusa: N. Appleman's Stueder 2, c ne se 10-17s-11w, Congl 3300 ft, abnd 3333 ft.

Barton County—Ainsworth: Derby & Crow's Gary 1, nw se sw 10-17s-13w, Arb 3347 ft, abnd 3400 ft.

Cowley County—Rock: Stelbar's Wilson 2-A, sw sw ne 11-30s-4e, Miss 2818 ft, abnd 2925 feet.

Cowley County—Deichman: Meade Production Co.'s Meador 1, se ne sw 23-31s-4e, Miss 2981 ft, abnd 2996 ft.

Ellsworth County — Stoltenberg: Skelly's Harbacek 2, se ne 7-16s-10w, Arb 3393 ft, abnd 3404 ft.

Graham County — Morel: Continental and Cities Service's Morel 4, c e½ se se 15-9s-21w, Arb 3705 ft, swab 188 bbls 4 hrs, 3714 ft.

Greenwood County — Beaumont: K. T. Weideman's Baldwin 2, se ne ne 12-27s-8e, Arb 2872 ft, abnd 2884 ft.

K. T. Weideman's Temple 3, se se ne 26-27s-8e, Miss 2530 ft, 1000 gals acid, pump 15 bbls, 2538½ ft.

Harvey County—Burton Area: J. J. Lynn's Havely 1, Miss lm 3256 ft, 1000 gals acid, flow 100 bbls, 3364 ft.

Jefferson County—McLouth: Sherrod et al's Bower 3, se sw ne 5-10s-20e, Dolo 1649 ft, pump 60 bbls, 1654 ft.

Marion County—Lost Springs: Derby and Carey's Bernhardt 1, c w½ ne ne 16-17s-4e, Miss 2338 ft, pump 100 bbls, 2367½ ft.

Phillips County—N. Dayton: T. H. Allen et al's Culbertson 1, c nw ne 13-2s-19w, Lans 3298 ft, pump 60 bbls, 3391 ft.

Pratt County—Carmi: Champlin's Stueder 3, 29-26s-12w, Arb 4286 ft, 6000 gals acid, swab 25 bbls 2 hrs, 4312 ft.

Pratt County—N. Iuka: Shell's Petrowsky 1, sw nw sw 30-26s-12w, Arb 4285 ft, flow 164 bbls 5 hrs, 4306 ft.

Ohio's Honeman 1, sw se nw 31-26s-12w, Arb 4293 ft, 5000 gals acid, pot flow 3000 bbls, 4310 ft.

Mid-Continent's Knop 2, sw ne ne 25-26s-13w, Arb 4314 ft, shot 4 qts, pump pot 1716 bbls, 4333½ ft.

Hollow Drilling Co.'s Harrell 3, se sw ne 36-26s-13w, Arb 4308 ft, 500 gals acid, flow 28 bbls hr, 4327 ft.

Reno County — Peace Creek: Magnolia's Thompson 2, sw se sw 32-23s-10w, Viola 3672 ft, flow 114 bbls oil, 2,500,000 gas, 3701 ft.

Reno County—Zenith: Skelly's Johnson 3, c ne ne 6-24s-10w, Viola 3687 ft, flow 268 bbls 7 hrs, ½-in, 3719 ft.

Rice County—Silica: Cities Service's Doll B-1, sw ne sw 19-19s-10w, Arb 3290 ft, 3000 bbls, 3298 ft.

Emerich's Linville 1, ne nw ne 2-20s-10w, Arb 3302 ft, abnd 3311 ft.

Rooks County—Laton: Bay Petroleum Co.'s Swisher 1, c s½ sw sw 34-8s-16w, Lans 3071 ft, 10,000 gals acid, pump 279 bbls, 3140 ft.

Russell County—W. Greenvale: Cities Service's Marsh B-2, c s½ se se 30-14s-12w, Gorham 3104 ft, pot 1064 bbls, 3108 ft.

Russell County—Witt: Stanolind's Boxberger 3, sw sw nw 10-14s-14w, Lans 2986 ft, Congl 3246 ft, 6,500 gals acid, pump 400 bbls, 3255 ft.

Russell County—Hall-Gurney: Cities Service's Strecker A-12, c ne se 35-14s-14w, Reagan 3196 ft, abnd 3213 ft.

Saline County—Hunter: Deep Rock's Threlkeld 2, ne se ne 19-16s-14w, Miss 2707 ft, pump 35 bbls oil, 75 wtr, 2748 ft.

KANSAS WILDCATS

Ellis County—Failure: Phillips and Continental's John Hancock 1, nec 17-11s-18w, Arb 3546 ft, abnd 3576 ft.

Ellis County—Discovery: N. Appleman and Harbar Drilling Co.'s Ranch 1, sec 19-11s-18w, Arb 3609 ft, 2500 gals acid, pump 432 bbls, 3619 ft.

McPherson County—Failure: Helmerich & Payne's Kumli 1, c w½ nw nw 6-18s-5w, Viola 3682 ft, Arb 3817 ft, abnd 3888 ft.

Russell County—Failure: Nadel & Gussman's Sebesta 1, c sw se 35-15s-11w, Arb 3323 ft, abnd 3353 ft.

Saline County—Failure: Carles M. Coats et al's Applequist 1, c sw se 5-16s-3w, Viola 3424 ft, Arb 3581 ft, abnd 3597 ft.

Sumner County — Failure: Elmer Adams' McKnab 1-A, nec sw 35-31s-4e, Layton 2262 ft, abnd 2956 ft.

KENTUCKY

Hancock County: H. H. Vickers' Crowe 1, 2-O-33, Tar Spgs 473-83 ft, 5 bbls, 483 ft.

Henderson County: J. H. Williams Overby 1, 2-P-25, abnd 2212 ft.

M. Siegal's Dempewolf 4, 19-P-27, abnd 1365 ft.

Gulf's Williams 9, 23-Q-21, McCl lm 2748-54 ft, 86 bbls, 2754 ft.

KENTUCKY WILDCATS

Grayson County—Failure: Knight Oil Co.'s Knight 1, 9-L-44, abnd 1025 ft.

Henderson County—Failures: Sinclair Prairie's Hotchett 1, 12-P-25, abnd 2419 ft.

Farmer & Snyder's Heppler & Bower 1, 6-Q-27, abnd 1925 ft.

Union County — Failure: J. H. Gilliam's Clements 1, 3-O-19, abnd 2780 ft.

Webster County — Failure: H. L. Hunt's Reams 1, 15-M-22, abnd 3123 ft.

NORTH LOUISIANA

Caddo Parish—Hosston: Bayou States Oil Corp.'s Jolley B-14, nw nw se 21-22n-15w, pump 10 bbls, 1062 ft.

Morehouse Parish—Monroe: Union Producing Co.'s Crossett 63, ne 11-21n-4e, 992,000 gas, 2212 ft.

Union Producing Co.'s Tensas Delta 36, e½ ne 27-22n-4e, 1,424,000 gas, 2205 ft.

J. E. Farrell Co.'s Union Steele 5, w½ se sw 26-20n-3e, 15,088,000 gas, 2158 ft.

Union Parish—Monroe: Union Producing Co.'s Grayling 11, se 32-22n-4e, 1,248,000 gas, 2175 ft.

Union Producing Co.'s Grayling 12, se 31-21n-4e, 800,000 gas, 2200 ft.

SOUTH LOUISIANA

Calcasieu Parish—Vinton: Union Oil Co.'s Gray 1-M, nw nw 33-10s-12w, 5½-in 5925 ft, perf 5826-56 ft, flow 165 bbls ¼-in, td 5925 ft.

Evangeline Parish—Pine Prairie: Gulf's Schlicher-Thomas 1-C, nw nw 1-4s-1w, perf 9079-88 ft, flow 240 bbls, 5/32-in, td 9193 ft.

Evangeline Parish—Ville Platte: Continental's Vidrine-Reed-Vidrine 2, ne se 28-3s-2e, 6-in 10,253 ft, flow 169 bbls, 10/64-in, td 10,253 ft.

St. James Parish—St. James: Humble's Graugnard & Sons 1, 6450 ft ne alg nwl fr nw cor sec 85, th se'ly at ra 525 ft in 85-12s-16e, abnd 10,936 ft.

St. Mary Parish—Charenton: Fifteen Oil Co.'s South Coast 4, nw 26-13s-10e, abnd 8698 ft.

Evangeline Parish — Pine Prairie: Pan American's Crowell Land & Mineral 2, se nw 2-4s-1w, 5½-in 8745 ft, perf 8617-38 ft, 8646-54 ft, and 8660-84 ft, flow 489 bbls, ¼-in, td 8801 ft.

The OIL WEEKLY'S TRADING POST

USED EQUIPMENT FORUM

CLASSIFIED ADS . . . EQUIPMENT . . . SERVICES . . . PERSONNEL

If you want to buy, sell or exchange good used equipment, a low-cost ad in these columns will get action for you in a hurry. See rates quoted below

FOR SALE

■ FOR SALE: 2 Cooper Winches, medium size, V-8 Motor, unitized with Heavy Duty telescoping mast. Price $1600.00 each. Wichtex Machinery Co., Wichita Falls, Texas.

■ FOR SALE: 2 Light Plant Units—one PA-100 International with 50 KW Generator and exciter, other unit PA-50 with 35 KW Generator and exciter with switch board. J. W. Monfort, Alva, Oklahoma.

■ 4000′ GRADE D 3½″ OD 13.30-lb. range 2 internal flush external upset drill pipe equipped with Hydril tool joints; also, 5000′ full hole 4½″ OD 16.60-lb. range 2 drill pipe. Chas. B. King, Panhandle Bldg., Wichita Falls, Texas.

■ PRODUCTION AND EQUIPMENT: 50 wells average depth 1700 feet. Present daily production slightly more than 25 barrels 36 gravity oil. Most wells produce no water. Production can be increased by cleaning out. Also 10 presently dead wells which can be cleaned out and put back on production. Two deeper oil bearing formations within 800 feet. Leases cover 850 acres. Boundaries less than three-fourths drilled. Only two inside wells drilled to balance power. No dry holes. Also 6000 acre block with one producing well on it adjoining above production. Price: Pay us ceiling prices for equipment, all in good condition, and we will give you the production which is still good for minimum net return of $500.00 per month during next ten years. Owner retiring under doctor's orders. Don't write; come and see. Alexander Boynton, 615 Insurance Bldg., San Antonio, Texas.

■ FOR SALE: 3 complete Power Rotary Drilling Rigs with approximately 7000 feet 3½″ OD Drill Pipe and 12,000 feet of 4½″ OD Drill Pipe. All Waukesha, Butane Equipped Motors and Gardner Denver 14 Pumps. These rigs are all running and in good condition. Box 331, Carmi, Illinois.

OIL INDUSTRY PRINTED FORMS

■ Immediately available all types of printed forms generally used by oil companies. Lease forms, daily production and gauge reports, priority, purchase and emergency order forms, labor time sheets, daily truck drivers reports, material and pipe tally forms, etc. Complete catalog on request. Address Oil Form Dept., Gulf Publishing Company, Houston, Texas.

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■ Men wanted, by large independent oil company, for work on seismograph field crews engaged in exploration for oil in the United States. This is considered essential war work and will continue after the war. College degree in engineering or geology desirable. Address full particulars including education, age, experience, salary requirements and draft status to Box 96, Bakersfield, California.

ADVERTISING RATES

TRADING POST SECTION

Regular classified advertisements for this special section, set in type this size without border, take flat rate of 7 cents per word for the first insertion and 5 cents per word for each subsequent insertion of same copy. Display advertisements for this section, set in suitably larger type with ruled border, are $5.00 per inch for first insertion and $4.00 per inch for subsequent insertions. Remittance must accompany copy which should be sent to:

Trading Post Section, THE OIL WEEKLY
P. O. Box 2608 Houston, Texas

MICHIGAN

Clare County—North Winterfield: Taggart Bros. Co.'s State S9, c se 8-20n-5w, 2,600,000 gas, 1295 ft.

Newaygo County—Woodville: Ohio's Barbas 1, s½ sw nw 28-15n-11w, Traverse lime, abnd 2900 ft.

Van Buren County—New Geneva: Socony Vacuum's Varnum 1, ne sw sw 24-1s-16w, Traverse lime, abnd 1075 ft.

Louis Rose's Abbott 1, ne nw ne 26-1s-16w, Traverse lime, abnd 1300 ft.

Missaukee County—Norwich: Sun's Camlin-Ellis 2, s½ ne se 10-24n-5w, Richfield lime, swab and flow 40 bbls, 4475 ft.

Newaygo County—Woodville: Ohio's Gas Unit 3, c se 20-15n-11w, Stray sand, 4,670,000 gas, 1196 ft.

MICHIGAN WILDCATS

Allegan County—Failure: Fisher-McCall Oil & Gas Co.'s Starring 1, se ne se 10-2n-16w, Traverse 1267 ft, abnd 1280 ft.

NEW MEXICO

Eddy County: Fred Brainard et al's Brainard 1-B, se ne se 6-18s-27e, pump 16 bbls, acid 4000 gals; shot 60 qts 1790-1817 ft.

Nash-Windfohr & Brown's Jackson 8-B, c sw nw 25-17s-30e, flow 225 bbls, 2-in, shot 100 qts 3220-68 ft.

Western Prod. Co.'s Keeley 7-C, c sw sw 25-17s-29e, flow 760 bbls, ¾-in, 2937-3073 ft, td 3104 ft.

Lea County—Lynn: Repollo Oil Co.'s State 2-F-157, c se ne 17-23s-36e, salt 1590-3285 ft, flow 538 bbls 2-in, acid 1500 gals 3685-3760 ft, td 3775 ft, pb to 3760 ft.

Lea County—Maljamar: Johnny Cockburn et al's Miller 17-B, c nw sw 25-17s-32e, flow 175 bbls 2-in, shot 200 qts 4100-4200 ft.

OKLAHOMA

Carter County—N. Caddo: Sun's Fraser 1, c sw sw 26-3s-1e, dense 5300 ft, abnd 5353 ft.

Sinclair's Fraser 1, c se sw 26-3s-1e, abnd 205 ft.

Tide Water's Fraser 1, c nw sw 26-3s-1e, abnd 5592 ft.

Creek County—E. Tuskegee: Bruin's Oliver 3, sw se ne 28-14n-10e, Wx 3251 ft, shot 75 qts, pump 60 bbls, 3288 ft.

Creek County—Olean: Shell's Townsend 1, nw se se 36-17n-7e, Wx 3592 ft, abnd 3613 ft.

Creek County—Glenn: Sinclair Prairie's Berryhill 52, near c e½ ne 16-17n-12e, Glenn 1418-1588 ft, shot 140 qts, pump 15 bbls, 1590 ft.

Sinclair Prairie's Berryhill 53, near c ne 16-17n-12e, Glenn 1406-1575 ft, shot 140 qts, pump 12 bbls, 1578 ft.

Comanche County — Ft. Sill Reservation: Parker Drilling Co.'s Spencer 1, ne ne sw 22-3n-10w, Permian zone 880-90 and 1063-69 ft, abnd 1144 ft.

Garfield County—Garber: Sinclair Prairie's Campbell 26, nw sw nw 30-22n-3w, pump 16 bbls, 1509 ft.

Hughes County—Unnamed: Delaney's Stanford 1, se ne ne 22-6n-8e, Booch 2635-50 ft, pump 38 bbls 12 hrs, 2650 ft.

Burke-Greis' Simons 2, se ne se 24-9n-8e, Wx 4370 ft, abnd 4382 ft.

Kay County—Dillworth: Dunn et al's Warren 1, ne nw nw 30-28n-1e, Arb 3492 ft, abnd 3567 ft.

Marshall County—Cumberland: Pure's Little 101-7, c sw ne 28-5s-7e, Oil Creek 6091 ft, flow 3648 bbls oil, 2,062,368 gas, new horizon, 6277 ft.

Marshall County — Isom Springs: Gill & Morse's Minter 1, nw nw se 31-7s-6e, sand 487-515 ft, pump 5 bbls oil, 10 wtr, 515 ft.

Osage County—Unnamed: A. G. Oliphant's Osage 1, c nw sw 20-25n-3e, Layton 2846 ft, flow 1168 bbls, 2867 ft.

Osage County—S. Hickory Creek: Denman & Holbert's Osage 3, c n½ se 9-28n-11e, Wayside 970-76 ft, shot 80 qts, pump 15 bbls, 1001 ft.

Pawnee County — Keystone: Wilcoxson's Mitchell 1, se nw se 27-20n-9e, Lost Creek 501-11 ft, shot 20 qts, pump 2½ bbls, 511 ft.

Seminole County—Fish: F. P. Lanahan's Fish 2-A, ne se ne 19-7n-8e, Calvin 1321 ft, pump 25 bbls, 1333 ft.

Stephens County — Empire: McAllister's Sperrit-Trout 1, nw ne sw 1-2s-8w, abnd 1477 ft.

Stephens County—W. Loco: Jackson Bros.' Dilley C-3, c ne ne ne 7-3s-5w, sandy lime 1060-85 ft, flow 90 bbls, 1115 ft.

OKLAHOMA WILDCATS

Garvin County—Failure: Ohio's Simpson-Kelly 1, sw se nw 14-1n-1w, abnd 4993 ft.

Johnston County—Failure: Hammer's Aubrey 1, c sw sw 8-2s-8e, abnd 1770 ft.

Kay County—Failure: F. C. Miller's Osage 1, c ne sw 9-26n-3e, abnd 644 ft.

Marshall County—Failure: Baldwin & Kimball's Taylor 1, se se ne 7-5s-5e, McLish 4445 ft, abnd 4486 ft.

Sinclair Prairie's Taylor 1, c sw nw 8-5s-5e, abnd 665 ft.

Pottawatomie County — Discovery: Stanolind's Perkins 1, sw sw sw 10-8n-3e, Hunton 4856-69 ft, 1000 gals acid, flow 341 bbls, 5475 ft.

EAST TEXAS

Wood County—Quitman: Shell's Blalock 1, 619 ft ewl and 761 ft snl 43.21-ac tr, E. Goodsir sur, elev 440 ft, flow 780 bbls, ¼-in, Paluxy perf 6252-6330 ft, td 6465 ft.

Shell's Goldsmith 5, 3461 ft ewl and 660 ft snl 608-ac tr, W. W. Lanier sur, Paluxy series 6333 ft, flow 520 bbls ¼-in, perf 6350-72 ft, td 6565 ft.

Wood County—Hawkins: Humble's Republic Life 1-C, 1110 ft ewl and 511 ft snl H. E. Watson sur, elev 420 ft, flow 430 bbls ¼-in, perf 24 shots 4545-59 ft, td 4660 ft.

NORTH TEXAS

Clay County: Bridwell Oil Co.'s Saner-Lomax 17, 3550 ft from ne and 2950 ft from m/sw/nw line of Saner-Lomax subdiv, blk 118, abnd 1124 ft.

Bridwell Oil Co.'s Saner-Lomax 18, 600 ft ne and 330 ft se nw nw line blk 118, pump 57 bbls, sand 1129-34 ft.

Texas Co.'s Duncan 1, 925 ft from nw and 330 ft wel blk 16, Bacon subdiv, abnd 1400 ft.

Cooke County—Walnut Bend: Sinclair Prairie's Brown 1, 330 ft out nwc sec 67, Fannin CSL, Snuggs 4797 ft, Winger 5443 ft, flow 950 bbls 2-in, sand 5443-5524 ft, td 5590 ft.

Jack County—Boyd: Taubert-McKee and Sinclair Prairie's Boyd 3, 660 ft snl and 1980 ft wel S. M. Hazel sur, A258, Bend 5460 ft, Marble Falls 5677 ft, Ellenburger 6386 ft, abnd 6425 ft.

Wichita County: Grace & Grace's Boyd 1, 2184 ft snl and 513 ft ewl blk 50, KWVFL sur, abnd 1833 ft.

Grace & Grace's Kemp-Kempner 1, 330 ft out sec e-80 of n-100 ac blk 49, KWVFL sur, abnd 1846 ft.

NORTH TEXAS WILDCATS

Archer County—Failures: Geo. W. Cooper et al's Perkins 1, 660 ft out nwc sec 30 leag 3, Denton CSL, KMA lime 4056 ft, Bend 4646 ft, Lower Bend 4853 ft, Barnett 5003 ft, abnd 5097 ft.

A. R. Dillard and Frank Wood's Albright

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1, se nw se sec 4, Hooper-Wade sur, Bend 4800 ft, abnd 4955 ft.

E. G. Stewart et al's McAnally 1, 467 ft out swc 233.1-ac tr, M. W. Matthews sur A729, abnd 3012 ft.

Cooke County—Failure: W. T. Lucas et al's Gilliland 1, 330 ft out nec of se 144-ac tr, Geo. G. Steele-Thos. Toby sur, A1062 abnd 1814 ft.

Young County—Failures: Anderson-Prichard Oil Corp.-Darby Pet. Co.'s McCorn 1, 773 ft e and 1278 ft n of m/s/sw corner Robt. Hewitt sur, A1454, Bend 3522 ft, abnd 4013 ft.

Anderson-Prichard Oil Corp.-Darby Pet. Co.'s Mooney 1, 330 ft ewl and 517 ft nsl 115½-ac lse, J. Mooney sur, A 1744, Palo Pinto 1623 ft, Bend 3499 ft, Barnett shale 4430 ft, lime 4513 ft, Ellenberger 4596 ft, abnd 4809 ft.

Tom F. Hunter's Roach 1, 330 ft out sec w½ TE&L 304, abnd 1293 ft.

TEXAS PANHANDLE

Carson County: Navajo Oil Co.'s Polling 3, c sw T T 24, blk Y-2, 30,000,000 gas, 350 lbs. rp, acid 7000 gals 2325-2460 ft, td 2515 ft.

Hutchinson County: Phillips' Johnson-Neil 2, 1550 ft nsl and 400 ft ewl n-240 ac H&TC 68, blk 46, pump 174 bbls, shot 180 qts 2679-2727 ft, td 2736 ft.

Shamrock O&G Corp.'s Stewart 8, 3300 ft nsl and 660 ft ewl AB&M 19, blk M-16, flow 1029 bbls, natural, 3160-68 ft.

Skelly's Crosby-Hatcher 3, 3089 ft nsl and 330 ft from m/e/w line T. C. Ry. 3, blk M-24, pump 162 bbls, plus 31 bbls water, acid 500 gals 3265-81 ft, td 3287 ft.

LOWER TEXAS COAST

Jackson County — North LaWard: Cities Service's Chamrad Unit 5, 370 ft fr n&wl's 225-ac unit, Pickering Rch subdvn, Jessie White sur, A 82, 5½-in 5250 ft, perf 5209-33 ft, flow 216 bbls, 3/16-in, td 5250 ft.

Jackson County—Collier: Sun's Classen 1, 5800 ft fr nel, 467 ft fr sel 246-ac tr, James Kerr sur, abnd 2603 ft.

Kleberg County—Stratton: Humble's King Ranch-Paso Ancho 36, 1980 ft nw'ly alg nl Santa Gertrudis gr, fr se cor Wardner 1379-ac tr, 5½-in 6600 ft, perf 6567-80 ft, flow 63 bbls, ½-in, td 6600 ft.

Nueces County—Richard King: Southern Minerals' Richard King 7-C, 2940 ft fr nl, 467 ft fr el sec 9, 4971-ac tr Casa Blanca gr, 5½-in 5405 ft, perf 5366-74 ft, flow 75 bbls, 7/64-in, td 5593 ft.

Sun's Brownlee 2, 524 ft fr sl, 1591 ft fr el sec 4, 752-ac tr, Richard King subdvn, 5½-in 5574 ft, perf 5572½-73 ft, flow 11 bbls, 9/64-in, td 5574 ft.

San Patricio County—Odem: Rupert Coz's McDaniels 1, 467 ft fr s&el's blk 14-A, Cubage & Miller subdvn, Juan Hart & Sons gr, abnd 5600 ft.

LOWER TEXAS COAST WILDCATS

Goliad County—Failure: Sun's Heard 1, 400 ft fr el, 3000 ft fr sl Robert Walker sur, A 296, 7 mi ne Cabeza Creek field, abnd 9002 ft.

Jackson County — Failure: Continental's Weeks 1, 1613 ft fr nel, 2098 ft fr nwl lot 9, J. W. Weeks subdvn, W. J. E. Heard sur, A 31, abnd 6592 ft.

Jim Wells County—Failure: A. H. & C. L. Rowan's Bagnall 1, 330 ft fr sl & 1320 ft fr el 184-ac tr, A. de la Garza gr, 3 mi s Alfred, abnd 55615 ft.

LOWER TEXAS COAST EXTENSIONS

Karnes County—Porter: Cox & Hamon's Johnson 1, 330 ft fr se&nel's 128-ac tr, Victor Blanco gr, 5½-in 4070 ft, perf 4011-13 ft, flow 68 bbls, ½-in, td 4180 ft.

Karnes County—Hobson: Seaboard's Kyselica 1, 500 ft fr s&wl's 80-ac tr, Don Erasmo gr, 5½-in 3980 ft, perf 3961-65 ft, flow 46 bbls, ¼-in, td 5005 ft. Extends pay mile ne.

SOUTHWEST TEXAS

Duval County—South Kohler: Shield Oil Co.'s Dinn 1, 1980 ft fr s&el's J. Poitevent sur 665, A 1438, abnd 3171 ft.

Duval County—Strake: Stanolind and Mills Bennett's Farmers Life 5-A, 330 ft fr n&wl's 40-ac tr out of 16,819-ac lse, J. H. Maynard Hrs. sur, A-349, 5½-in 3246 ft, perf 3238-44½ ft, flow 128 bbls, 3/16-in, td 3246 ft.

Starr County—Rincon: Continental's Davenport 4-D, 990 ft fr wl & 2310 ft fr nl CCSD&RGNG sur 530, se flank, abnd 8585 ft.

Starr County—North Sun, New Pay: Sun's Montalvo 1-B, 1980 ft fr nl, 1000 ft fr w'ly el 1156-ac tr, Los Retachez sur, 5½-in 5980 ft, perf 5936-38 ft, flow 20 bbls, 5/32-in, td 8064 ft.

Webb County—Dulup: George Buck and J. N. Abel's Puig Bros. 2, 801 ft fr wl, 550 ft fr nl blk 59, Edgington Mineral subdvn, Albercas de Arriba gr, 5½-in 1809 ft, pumped 66 bbls, td 1811 ft.

SOUTHWEST TEXAS WILDCATS

Duval County — Failure: Cox & Hamon's Hoffman 2-B, 1977 ft fr nwl, 2002 ft fr swl BS&F 111, 1 mi sw Tarancahuas field, abnd 2207 ft.

Jim Hogg County—Oil Discovery: M. L. Massingill Auto-Ordnance Co. and Texon Royalty Co.'s Yeager 1, 330 ft fr n&el H. C. Yaeger sur 29, 200-ac lse, 4 mi sw Hebbronville, 5½-in 3763 ft, flow 86 bbls ¼-in, td 3771 ft.

Starr County—Oil Discovery: W. L. Goldston's Gutierrez 1, 1320 ft fr wl, 330 ft fr nl 185-ac lse, share 44-B, porcion 88, J. S. de la Garza gr, 5½-in 2933 ft, Vicksburg 2845 ft, perf 2848-62 ft, flow 8 bbls, ¼-in, gor 1665-1, td 4003 ft.

Zapata County—Failure: Dulup Oil Co.'s Hinnant 1, Mirando Valley area, 1656 ft fr nwl, 1000 ft fr swl 240-ac tr, abnd 2064 ft.

Zapata County—Failure: Texas Co.'s Hartman 1, 2310 ft fr ne&sel Samuel Hamilton sur 292, A 463, abnd 2447 ft.

SOUTHWEST TEXAS EXTENSION

Jim Hogg County—Weil: Sun's Weil Bros. 5, 1362 ft fr nl portion of 25,811-ac lse in s part Palitos Blancos gr, 5½-in 4995 ft, flow 734,000 gas, 4½ bbls dist, ⅛-in, td 5355 ft.

SOUTH CENTRAL TEXAS

Maverick County — Chittim: Rycade Oil Corp.'s Unit 1, 720 ft fr wl, 840 ft fr sl I&GN 129, abnd 5735 ft.

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West Texas

Andrews County—Embar-Permian: Phillips' University-Andrews 34, c ne sw sec 31, blk 10, elev 3246 ft, flow 220 bbls 1-in, acid 1000 gals 6177-6254 ft, td 6628 ft, pb to 6254 ft.

Andrews County—Mascho: Phillips' University 1-C, 614 ft nsl and 677 ft wel ne¼ sec 4, blk 10, flow 189 bbls 2-in, acid 1000 gals 4274-4612 ft.

Cochran County—Slaughter: Jerry Hawkins et al's Mallet 42-A, 550 ft out nwc lab 15, leag 47, Edwards CSL, flow 566 bbls, cas, acid 11,500 gals 4880-4945 ft.

Crane County—Sand Hills: Magnolia's Lea 3, c nw sw PSL 9, blk B-32, flow 389 bbls ½-in, 4390-4601 ft.

Ector County—Foster: Stanolind's Cowden 42-B, se ne se T&P 10, blk 43, T-2-S, flow 386 bbls, 2-in, shot 913 qts 4030-4340 ft, td 4365 ft.

Ector County—Goldsmith: Stanolind's Cummins 1-C, 1766 ft snl and 2261 ft ewl T&P 32, blk 45, T-1-N, pump 54 bbls, plus 18 percent water, acid 14,000 gals, 4245-4312 ft.

Gaines County—Cedar Lake: Geo. P. Livermore's Jones-Humble 4, c sw se PSL 2, blk C-30, swab 513 bbls, shot 254 qts 4750-4819 ft, td 4821 ft.

Pecos County—Apco: Magnolia's Fromme 3, 1980 ft from ne and nw lines H&GN 106, blk 10, Ellenburger 4490 ft, flow 790 bbls, ½-in, acid 2000 gals, perf 4513-70 and 4590-4660 ft, td 4697 ft.

Pecos County—Conry-Davis: Geo. Abell et al's Williams 2, 330 ft from nw and sw lines lot 12, H&TC 15, blk 2, flow 41 bbls, ½-in, acid 4000 gals 2288-2306 ft.

Pecos County—Taylor-Link: J. D. Lancaster et al's University 3, ne sw ne sec 32, blk 16, flow 182 bbls, ½-in, acid 1500 gals, 1407-11 ft.

Pecos County—Tobarg: Cardinal Oil Co.'s Tippett-Shell 5-F 150 ft from m/e/w and 4280 ft m/n/n lines GC&SF 61, blk 94, pump 45 bbls oil, 6 water, shot 30 qts 335-355 ft.

Runnels County—Winters: Pawnee Royalty Co.'s David 2, 660 ft out sec lse, sec 330, blk 64, H&TC-F. J. Ford sur, pump 15 bbls oil, 17 water, shot 40 qts 2459-69 ft, td 2473 ft.

Scurry County—Sharon: Magnolia's Sterling 6, ne ne H&TC 130, blk 97, pump 99 bbls, shot 380 qts 2198-2350 ft, acid 1000 gals, td 2443 ft.

Ward County—Byrd: Stanolind's Wood 4-A, 660 ft from nw and 1986 ft from sw lines H&TC 34, blk 34, pump 168 bbls, shot 80 qts 2645-71 ft, td 2675 ft.

Ward County—Spencer: Stanolind-Atlantic's Monroe 1, 660 ft from nw and 1992 ft from sw lines H&TC 52, blk 34, flow 52 bbls, ⅛-in, shot 56 qts 2762-80 ft, td 2969 ft, pb to 2786 ft.

Yoakum County—Wasson: Plymouth Oil Co.'s Bennett 3-C, 660 ft snl and 1830 ft ewl sec 630, flow 177 bbls 2-in, acid 8000 gals 5212-95 ft.

WEST TEXAS WELL DEEPENED

Winkler County—Keystone: Sid Richardson et al's Jenkins-Conoco 4, PSL 13, blk 77, otd 3365 ft, flow 62 bbls, 17/64-in, shot 300 qts 3360-3474 ft.

TEXAS GULF COAST

Fort Bend County—Clodine: Providence Oil Co.'s Bonner 1, 40-ac lse, John Brock sur, A 110, 5½-in 7508 ft, sand 7490 ft, flow 55 bbls, ½-in, td 7508 ft.

Hardin County—Saratoga: Rio Bravo Oil Co.'s Fee 545-C, 158-ac tr, J. F. Cotton sur, pump 17 bbls, 796 ft.

Harris County—Katy: Sun's Mansell 1, 660 ft out of sw H&TC 65, abnd 7776 ft.

Liberty County — Kirby: General Crude's Welch Fee 4-A, 660 ft fr s&wl of e 500-ac of 956-ac lse, Meredith Duncan sur, 5½-in 7893 ft, perf 7510-20 ft, 7540-50 ft, 7555-65 ft, 7385-95 ft, flow 300 bbls, ¼-in, td 8550 ft. Opens new sand.

Matagorda County—North Markham: Ohio's Carlson 19, 510 ft fr ne, 1320 ft fr sel lot 3, 2779-ac tr I&GN sur, abstract 329, 5½-in 8133 ft, flow 363 bbls, ½-in, td 8446 ft.

Waller County—Katy: Ohio's Smock 1, 1980 ft fr el, 660 ft fr sl H&TC 93, 5½-in 7160 ft, perf 6865-68 ft, flow 144 bbls, ½-in, td 7446 feet.

TEXAS GULF COAST WILDCATS

Brazos County—Failure: Phillips' Schoeps 2, 200-ac tr, 1 mi w Millican townsite, abnd 3493 ft.

Chambers County—Failure: Arkansas Fuel's Frankland 1, 188-ac tr, R. Frankland sur, 4 mi ne Smith Point, abnd 10,103 ft.

Matagorda County — Distillate Discovery: Superior's Peterson 1, Sugar Valley area, 80-ac tr, P. Burnett and A. S. Sojourner survey, A 13, 7-in 10,665 ft, perf 9754-59 ft, flow 154 bbls 53-grav dist, 5,029,000 gas, gor 38,089-1, ¼-in, td 10,702 ft.

WEST CENTRAL TEXAS

Brown County: Central Texas Gas Co.'s Perry 7, 1350 ft snl and 900 ft wel nw¼ E.T. Ry. sec 1, abnd 888 ft.

Gilcrease Oil Co.'s Transwestern 1, 330 ft out nec 80-ac lse, HT&B sec 41, abnd 1550 feet.

Callahan County: L. M. White et al's McGee 1, 470 ft nsl and 200 ft ewl e½ sw Comal CSL sec 58, abnd 457 ft.

Jones County — South Noodle: Humble's Gunter 2, 2090 ft nsl and 550 ft ewl T&P 34, blk 18, pump 19 bbls, acid 5000 gals 2457-66 ft, td 2469 ft.

Shackelford County: Gorsuch & Grove's Gorsuch 1, sw sw ne T&P 82, blk 13, pump 5 bls oil, 1 water, 1809-21 ft.

Taylor County—Merkel: Lewis Prod. Co.'s Golightly 2, 990 ft ewl and 330 ft nsl lot 7, leag 124, Grimes CSL, pump 270 bbls, 2601-12 ft, td 2615 ft.

WEST CENTRAL TEXAS GAS INPUT WELL

Eastland County—Ranger: T.P. Coal & Oil Co.'s Butler 30, 2968 ft ewl and 2816 ft nsl lse, John York sur, A 557, Barnett shale 3792 ft, Ellenburger 3893 ft, td 3926 ft, pb to 3503 ft to repressure.

WEST CENTRAL TEXAS WILDCATS

Brown County—Failure: V. Gamblin et al's Woods 1, 850 ft snl and 1050 ft ewl Phillip Geiger-W. English sur, abnd 550 ft.

Eastland County—Failure: E. M. Thomasson et al's Tate 1, 330 ft snl and 1320 ft wel Stanley Lackerman sur 796, abnd 2476 ft.

Jones County—Failure: Merry Bros. & Perini's Bowyer 1, 1608 ft snl and 1120 ft wel n-225 of w-355 ac of BBB&C 37, elev 1648 ft, abnd 3082 ft.

Parker County—Failure: Devonian Oil Co.'s Buck 1, 660 ft n of m/n line Thos. Brown sur and 508 ft w of w line of T. H. Odell sur, but in I&GN 2, blk 9, Ellenburger 6690 ft, abnd 7124 ft.

Taylor County—Failure: Great Lakes Carbon Co.'s Porter 1, 1762 ft from m/n/n and 1113 ft ewl of lot 11, J. A. Nabors sur 10, elev 1801 ft, abnd 2880 ft.

United States Wildcat Starts

CALIFORNIA

Kern County: Petromont Oil Corp.'s 1, nw nw sw 25-28-20, Belridge, South area, lcn.

ILLINOIS

Clay County: Gulf's Young 1, sw sw sw 18-2n-5e, lcn.

Madison County: O. W. Dickerson's Culp 1, se ne 35-6n-9w, lcn.

Shelby County: Walter Duncan's Hoskins 1, nw nw ne 21-10n-4e, lcn.

Wabash County: National Pet Trust et al's E. Myers 1, ne nw nw 11-1n-14w, dr.

Wayne County: H. H. Weinert's McConnell 1, ne nw 27-1s-8e, dr.

Canterberry & Mabee's H. J. Weaver 1, se se se 11-1s-9e, lcn.

Gulf's Higgins 1, nw nw se 19-1n-5e, dr.

INDIANA

Warrick County: White Eagle's John Scales 1, ne sw sw 36-4s-7w, lcn.

KANSAS

Barton County: Transwestern's Deckert 1, se ne sw 16-20-15w, lcn.

Edwards County: Cities Service's Breitenbach 1, c e½ se se 5-25s-16w, mim.

Kingman County: Stanolind's Sample 1, sec nw 2-29s-8w, rur.

Kiowa County: Superior of Cal's Wright 1, c sw nw 14-30s-16w, dk.

McPherson County: R. E. Day's Wade 1, c w½ ne se 9-19s-5w, rur.

Phillips County: Harbar Drilling Co.'s Wheaton 1, swc se 9-5s-17w, lcn.

Rice County: Skelly's Guldner 1, nw sw ne 8-18s-9w, dk.

Rooks County: Texas Co.'s McQueen 1, nwc se 16-6s-18w, lcn.

Cities Service's Bessey 1, ne nw nw 21-9s-16w, lcn.

KENTUCKY

Daviess County: Bennett Bros. and Thomas' Howard 1, 21-P-32, lcn.

Henderson County: Cherry & Kidd's Cooper 1, 1-P-21 dr.

Kingwood's White 1, 11-P-24, lcn.

Union County: Mar-Hill's Anderson 1, 24-0-19, lcn.

NORTH LOUISIANA

Bossier Parish: Carter's Bolinger 1, se nw 20-22n-11w, dk.

Shell's Bolinger 1, sw sw 2-23n-12w, rig.

Catahoula Parish: Sinclair Prairie's State 1, nw se 30-9n-7e, sd at 98 ft, acct high water.

DeSoto Parish: M. E. Brooks et al's Jordan 1, se ne 9-13n-14w, lcn.

Jackson Parish: Mid Continent's Tremont 1, se ne 31-15n-3e, dr.

Webster Parish: Ohio's Gleason 1, nw nw 31-22n-9w, dr.

MICHIGAN

Clinton County: W. H. Colvin, Jr.'s Homer 1, n½ se nw 25-5n-1w, rig.

Gladwin County: Stork Oil Co.'s Emerson 1, se se se 32-18n-2e, dr.

Gratiot County: Freeman Oil Co.'s Bertha Community 1, c s½ se se 12n-4w, rig.

Mecosta County: Gordon Oil Co.'s Brush 1, c ne se 14-15n-8w, dr.

Van Buren County: Central Development Co.'s Barker 1, sw sw nw 19-2s-16w, dr.

NEW MEXICO

Eddy County: Sanders Bros. et al's Hultman 1, c se ne 32-16s-26e, machine for 5000-ft test.

Lea County: Humble's Leonard Oil Co.-U. S. Gov. 1, c sw sw 12-26s-37e, lcn Ellenburger test.

OKLAHOMA

Kay County: Phillips' Cather 1, se sw ne 24-27n-2w, dr.

Logan County: W. H. Elson's Woods 1, se se ne 28-17n-1e, dr.

Danciger et al's McPeek 1, c ne se 18-18n-3w, dr.

Oklahoma County: Ace Gutowsky's Watson 1, se se sw 30-14n-1w, rur.

Osage County: Peters et al's Osage 1, ne ne ne 11-22n-11e, dr.

Seminole County: R. B. Patterson's Orwig 1, ne sw sw 2-5n-6e, dr.

J. E. Hall's Vierson 1, ne ne sw 7-6n-7e, dr.

EAST TEXAS

Leon County: Iseman & Gelski's Merrill 1, 1200 ft from sw and midway nw and se lines 56-ac tr, R. Clark sur, ½-mi sw Buffalo, mim for 2500-ft test.

Red River County: Clarence Hocker et al's Southern Pine 1, 330 ft snl and 667 ft wel 40-ac, Jas. Northcross sur, lcn.

Van Zandt County: Roger Lacy et al's Paul 1, 731 ft nsl and 1300 ft ewl Jas. Chesshire sur, 1/3 mi se Fruitvale, rur for 6600-ft Paluxy test.

Cass County: Sohio Oil Co.'s Sloan Taylor 1, H. Reams sur, dr.

LOWER TEXAS COAST

Kenedy County: Humble's McGill 2, 4000 ft s, 12,000 ft e of nw cor Santa Rosa de Arriba gr, 9 mi w Sarita, lcn 7500 ft test.

Jackson County: Hewit & Dougherty's Moody 1, Red Bluff area, 515 ft fr sl, 1980 ft fr el blk 16, Pickering Rch subdvn, Patrick Scott sur, A69, 305-ac lse, lcn.

Nueces County: J. Elmer Thomas' Jalufka 1, 467 fe fr n&wl 40-unit out of 262-ac tr, Las Temas Pet Co. unit, C. M. Oliver sur 164, A-693, 1½ mi w of Saxet field, lcn 6500 ft test.

Refugio County: Tide Water's Rooke 1, 440 ft fr n&el of w 40 ac of e 80 of blk 7, La Rosa subdiv, Jose Maria Cobian gr, rigging up.

SOUTH CENTRAL TEXAS

Gonzales County: Baldridge & King's Bowers 1, James & Gibson sur, 5 mi se Waelder, lcn 5500 ft test.

Amerada Petroleum Corp. and Alder Oil Co.'s Morgan & Kunetka 1, 12 mi s of Gonzales, 640 ac u out of 1569 ac tr in S. B. Conley sur, lcn.

NORTH TEXAS

Archer County: Akin-Dimock and Simpson-Fell Oil Co.'s Abercrombie 1, 330 ft wel and 1850 ft nsl blk 30, Harris Club Ranch subdiv, lcn 1500-ft test.

L. T. Burns et al's Frerich 1, 1500 ft nsl and 1000 ft ewl sec 106, blk 4, Clark-Plumb sur, lcn 6000-ft test.

J. L. McMahon et al's Deskin 1, 660 ft out nwc sec 10, blk 5, Clark-Plumb sur, lcn 1100-ft test.

E. C. Norwood Estate's Kinder 1, 660 ft out nwc sec 59, blk 5, Clark-Plumb sur, lcn 5800-ft test.

W. C. Young et al's Hayter 1, 330 ft out nwc s¼ TE&L 2436, spd on 1400-ft test.

Cooke County: D. L. Monroe et al's McIntosh 1, 330 ft from m/s/n and 330 ft from m/w/w lines SP 5, A 987, rur 2500-ft test.

Geo. L. Pace et al's Cannon 1, 330 ft out swc L. F. Johns sur, A 1569, dr 1560 ft.

Jack County: W. H. Carter et al's Roney-Standard of Texas 1, 330 ft out nwc TE&L A 3324, 5 mi ne Jermyn, lcn.

WEST TEXAS

Andrews County: Mid-Continent's University 1-B, c nw ne sec 16, blk 13, lcn 7500-ft test.

Pecos County: Debs Patillo et al's Iowa Realty 1, c e¼ of n¼ of w¼ H&GN 61, blk 10, lcn 2000-ft test.

Reeves County: Standard of Texas' T. P. Land Trust 1, c se nw T&P 47, blk 57, tsp 2, lcn Delaware test.

Sterling County: Phillips' Glass-Sterling 1, c nw ne T&P 3, blk 31, T-5-S, rur 9000-ft Ellenburger test.

TEXAS GULF COAST

Chambers County: Butcher-Arthur's Sherman 1, 113-ac tr, J. McFaddin sur, 5 mi n Wallisville, lcn 6000-ft test.

Fort Bend County: H. Merlyn Christie's Reeh & Schraexer 1, 40-ac tr, H&TC 21, 2 mi nw Needville, lcn 6500-ft test.

Jefferson County: Rowan Drilling Co.'s Broussard 1, 100-ac tr, Stephen Eaton sur, A 22, 4 mi n Fannette field, lcn.

Jefferson County: Shell's McFaddin Trust 16, 660 ft fr n&el of T&NO (Henry Gentz) 352, 1 mi sw Clem Lake, lcn 10,750 ft test.

WEST CENTRAL TEXAS

Jones County: North American Oil Consolidated's Minter 1, nw nw se T&P 41, blk 15, lcn 2600-ft test.

Oil Is Ammunition

The nation cannot afford through a shortage of petroleum and its products to cause the unnecessary prolonging of the present war. The effect on the economy of extending the present war for only a matter of two or three days would be far greater than any proposed or suggested increase in the cost of assuring a supply of petroleum necessary to hasten the early and successful conclusion of such war. This is only the economic effect. The question of lives involved, whether it be one or many, is too important to be subject to economic treatment.—*A report of the Economic Committee of The Petroleum Industry War Council.*

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Squeaks from the Bull Wheel

Personal Motive

Every day the woman appeared at the ball grounds and bought a reserved seat in the stands. From the moment the first ball was pitched until the last strike was called in the ninth she kept up a steady stream of abuse directed at the umpire. Like this:

"Wow! You're blind—you bum!

"Lynch the ump!

"Mr. Ump—where's your Army uniform?"

And so on. Finally, a curious newsman strolled over to the leather-lunged lady's seat one day and asked her: "How come this daily tirade against the umpire?"

"I hate him," replied the lady, taking time out to call him a spotted anteater. "He's my ex-husband."

Accounting

"John!"

"Yes, my dear."

"There's a corner torn off your pay check. What did you spend it for?"

Mastery

Local Man: "So your wife came to you on her knees last night?"

Neighbor: "Yes, and dared me to come out from under the bed."

Experienced

"How did you get that bump?"

"My wife threw a vase at me."

"Why on earth didn't you duck?"

"I did, but she allowed for it."

Cause and Effect

"Pardon me, but is your dress slipping or am I seeing things?"

"Both."

North or South

"I didn't see Jack at the party last night, but I hear he acted the part of a thoroughbred."

"What part?"

Well Met

"Women don't interest me. I prefer the company of my fellow men."

"I'm broke, too, brother!"

Sure Sign

"Old Johnson must have had a lot to drink last night," said one.

"Why?" asked the other.

"Well, when I was taking him home, he let me fall twice."

Trapped

"Isn't he rather fast for you, Mabel?"

"Somewhat, but I don't think he'll get away."

The Substitute

A doctor was summoned to the bunkside of a hill-billy stricken with fever.

Some two months prior to the time a barrel of whiskey had been added to the meager possessions of the hill-billy's family—the ethics of the acquisition does not enter into this tale—and of this the doctor had learned.

Desiring to tone up the patient with a stimulant, the doctor concluded his instructions to the hill-billy's wife thus: "Now, madam, the best thing for you to do before each meal is to give Jim a strong drink of whiskey."

"Law sakes! We-all ain't got no whiskey!"

"What, no whiskey! I know you had a barrel of it here two months ago."

"Yassir, I know, but a barrel o' whiskey don' las' long in a fambly what can't afford to keep a cow!"

Taken for Granted

Husband: "As I contemplate the wonders of nature, I realize how insignificant is man."

Wife: "Any woman knows that without contemplating."

Pome

Many a sailor
Bold and brave
Has made a wreck
Of a permanent wave.

Holding Out

"Darling, haven't I always given you my salary check on the first of every month?"

"Yes, but you never told me you got paid twice a month, you embezzler."

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of the Tulsa, Oklahoma, Bar
Second Edition—Revised and Greatly Enlarged

This is the most complete work on oil and gas forms that has ever been offered to the legal profession: contains the latest approved and current forms now being used by the industry throughout all the recognized oil and gas states.

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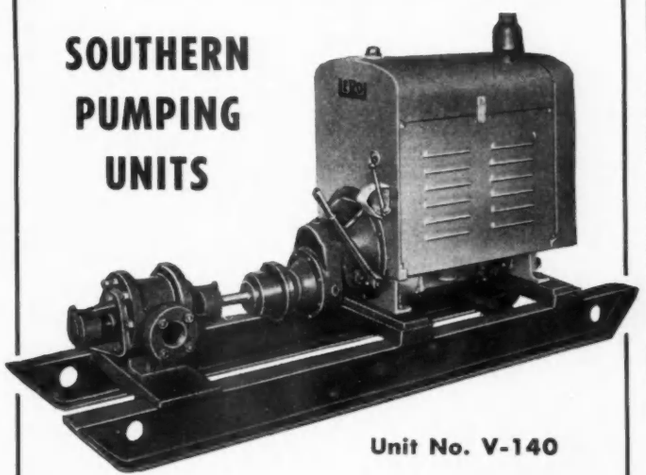
SOUTHERN PUMPING UNITS



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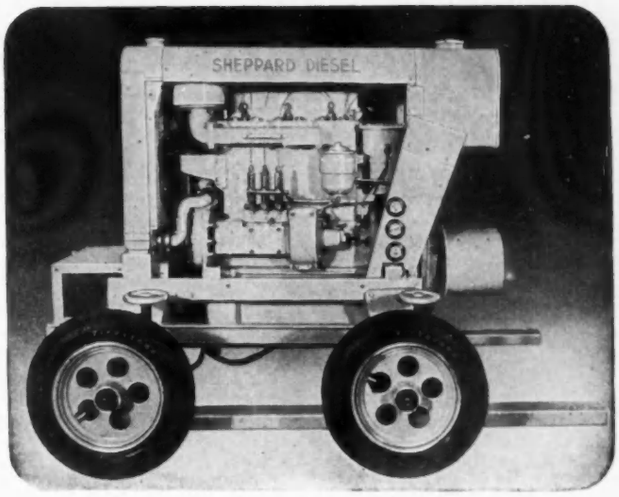

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The compact, continuous duty, 25 H.P. Sheppard Diesel furnishes dependable, low-cost power for pumps and drilling rigs, for auxiliary power in the oil fields. Its simple Fuel Injection System with self-bleeding injectors eliminates many of the moving parts which, in ignition systems, cause frequent breakdowns. The portability of the Sheppard Model 6 makes it possible to get power in any location speedily . . . without expensive installations . . . without loss from long power lines. 8 in. I-beams mounted on the chassis can be lowered when the unit is in use. This exclusive Sheppard feature releases pressure on tires and provides vibrationless operation.

Today, production is vital. Tomorrow the oil industry will have to meet increased demands of post-war rehabilitation. Oil field operators depend on efficient, economical "Packaged Power" to meet those demands . . . to give them greater production for every dollar spent on power. Write for specifications and data on Sheppard "Packaged Power" today.

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"Packaged Power"

Sheppard ALL AMERICAN Diesels

WANTED . . . Qualified Distributors. Write for Information.

Notes for the Equipment Buyer and User

Electronic Drive

WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pennsylvania, has developed a new electronic adjustable - speed drive, Mot - O - Trol, which assures automatic speed regulation and smooth fast acceleration with automatic current limitation.

Features of the electronic drive include stepless speed control, automatic close speed regulation over wide load fluctuations, full torque at extremely low speeds, smooth stepless acceleration and deceleration and dynamic braking. At present, a standard drive is available for ratings up to 1 horsepower for single-phase operation on 110- or 220-volt, 60-cycle systems. Special drives of larger horsepower rating can be designed to suit particular application requirements.

This new drive has 4 parts. These are (1) power transformer for separate mounting, (2) cabinet with the tryratron-tubes and the current limiting and speed regulating control, (3) control station with potentiometer to vary the voltage supplied to the armature and field cricuits and with start-and-stop push buttons, and (4) shunt-wound, d-c motor.

The standard outfit is designed to automatically regulate a present motor speed so as to maintain essentially constant speed regardless of load. The d-c voltage output of the main rectifier tubes is controlled by small tubes to compensate for speed changes. For a speed range of 10 to 1, with torque varying from no load to full load, speed will not vary more than 4 percent from a present value. Maximum variation for the 20 to 1 speed range is within 8 percent. No additional rotating part, other than the d-c motor is required.

Westinghouse Mot-O-Trol

Meter Register Extension

PITTSBURGH EQUITABLE METER COMPANY

Pittsburgh Equitable Meter Company, Pittsburgh, Pennsylvania, has announced an extension drive for registers used on any of its meters. The purpose of this extension is to permit installing the meter proper beneath the platform of loading racks, in pits or underground so that all that intrudes into the working area is the relatively compact register.

The register extension is made of heavy pipe fitted with internal bearings for the support of the register drive shaft. To it may be applied any of this company's complete line of registers including straight reading, straight reading reset, vertical dial and master meter duplicators.

The register extension can be furnished in any length up to a maximum of five feet.

Rotocycle Meter, Model B-5 fitted with Master Meter Duplicator and Extension Drive.

Parkersburg Rig & Reel Company officials with Army-Navy E presented to the company's Coffeyville, Kansas, plant recently. From left to right, John M. Crawford, chairman of the board and president; A. G. Evans-Lombe, sales manager; A. Sidney Knowles, executive vice president and D. C. Myers, vice president. This is said to be the only plant in the Mid-West that has won an Army-Navy E from the Bureau of Ships covering both the design and manufacture of machinery for cargo and fighting ships.

Hydraulic Jack

THE BUDA COMPANY

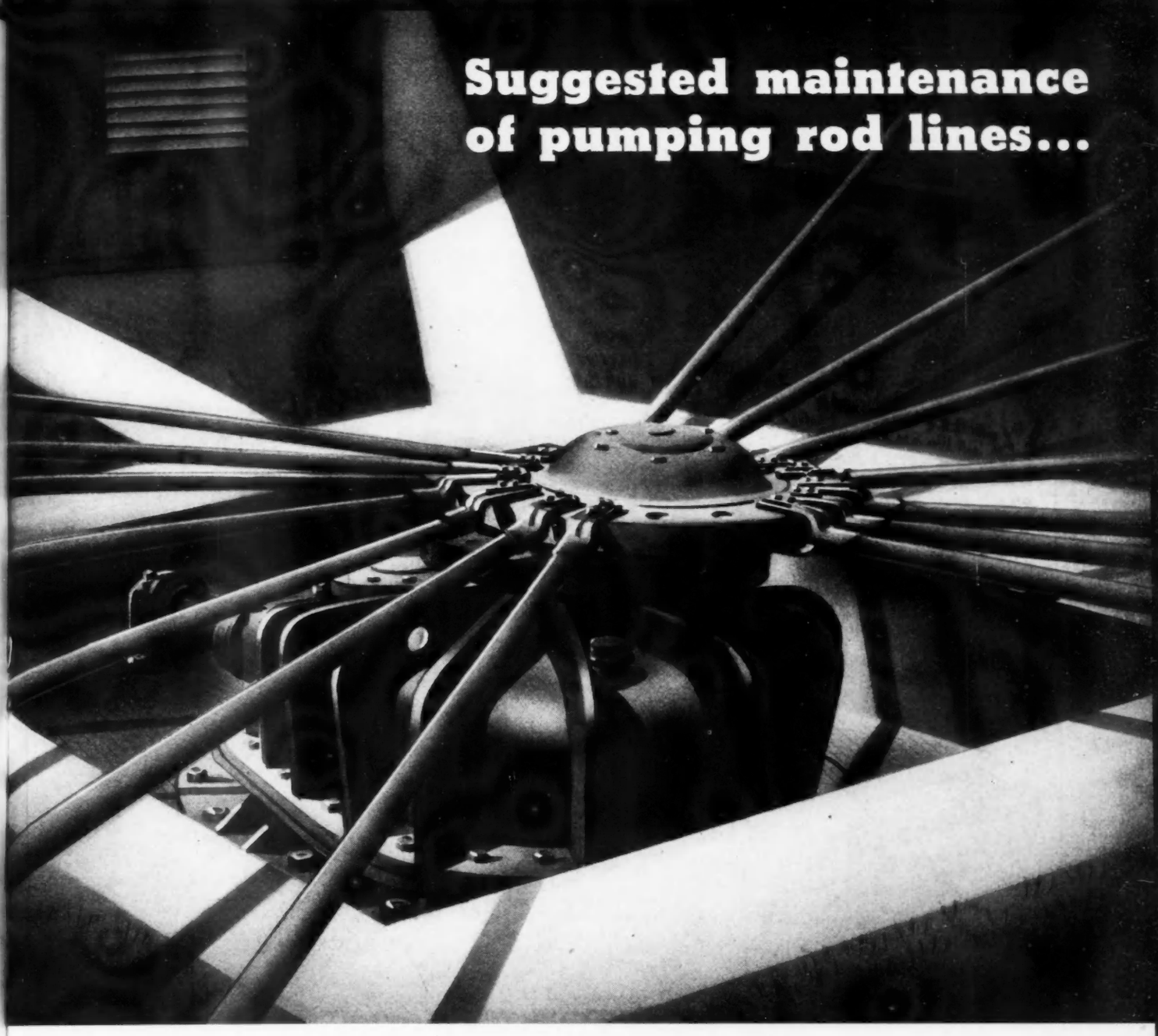
The Buda Company, Harvey, Illinois, announces a new two-speed hydraulic jack, Model 20-H-16, designed to meet the need for a safe and efficient "in-between" jack size of this type. The jack has a rise of 16 inches, a capacity of 20 tons, is 22 inches high closed, and weighs 85 pounds.

It is said that the jack can quickly and easily raise a load a height of 16 inches and can be easily raised or lowered by one man with complete safety. The load can be stopped at any position. Speed of lowering is under full control at all times.

Features of the jack include: positive control over raising and lowering; one-man operation; two-speed efficiency and safety; precision control release valve for lowering; leak-proof fluid system; non-creeping and non-settling; foolproof, heavy duty construction; two-speed lever socket can be easily and qiuckly changed from one speed to another, depending upon the load.

Excavators

Bucyrus-Erie Company, South Milwaukee, Wisconsin, has published a new booklet, "Ideas to Help You Keep Your Present Excavators Working and Doing More to Win the War." The booklet contains only practical, experienced-tested suggestions on how to maintain maximum excavator production.



Suggested maintenance of pumping rod lines...

Information supplied by "The Oil Weekly"

The following suggestions are offered for the maintenance of pumping rod lines:

1. Check frequently for stuck rollers, dry slides and gummed guides to prevent overloading rods.
2. Watch for excessive slack in catenaries. When loads come on loose strings with a jerk, rods are severely overloaded.
3. See that couplings are aligned and tight. Play in a coupling can jar a head loose and damage string.
4. Shift both end rods into the string frequently.
5. Rotate any rod that shows signs of bearing wear at least 90°, or replace it with un-worn rod.
6. Maintain proper counter balance at well or equalizer to minimize peak loads.
7. Avoid auxiliary power take-offs, unless point of attachment can be guided and supported throughout working cycle.
8. Do not batter or gouge rods. Nicks and scratches promote premature fatigue failure.
9. Protect the line, swings and fixtures against stock, trucks and "hitchriding" children.
10. Keep line clear of grass and underbrush. Even a grass fire can destroy protective coatings, lubricants and wooden supporting posts.

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Fire Control in the Oil Fields

Today, all these facilities plus our patriotic determination to help win the war are dedicated to

Fire Control in the U. S. Navy

Meanwhile, we will continue to furnish Orbit Valves to the Oil Country to the limit of our ability.

The Orbit Geared Master Valve

Fortunately, your Orbit Valves were originally designed and always built for long life under severest operating conditions.

If you have any questions regarding the care and maintenance of your Orbit Valves, write us.

OIL WELL IMPROVEMENTS CO.

TULSA, OKLAHOMA

Men in the Industry's News

J. L. MAUTHE has been appointed vice president in charge of operations of The Youngstown Sheet and Tube Company to succeed the late William B. Gillies. Mauthe will have charge of operations of the company's Youngstown and Chicago district manufacturing properties as well as supervising all its mining properties.

Mauthe's promotion came after 31 years in the iron and steel industry, 8 of those years with The Youngstown Sheet and Tube Company and many others with United States Steel Corporation subsidiaries in various places.

FOSTER B. PARRIOTT has been elected chairman of the board of Sunray Oil Corporation, returning to activity in the oil business after an absence of a year. He was president of Trans-Continental Oil Company until it was merged with Ohio Oil Company in 1930. He then formed Leader Oil Company which he sold to The Carter Oil Company a year ago.

D. A. BURTON, formerly with the land department of Mid-Continent Petroleum Corporation, has been transferred to Southwest Texas as scout.

E. B. REESER, president of Barnsdall Oil Company and former president of American Petroleum Institute, has announced his retirement, effective August 1. James A. Dunn, vice president and secretary of the company, is scheduled for election to the presidency.

WARREN D. ANDERSON, for over five years a member of the engineering staff of Norma-Hoffman Bearings Corporation, Stamford, Connecticut, has been made assistant to chief engineer. Frank L. Wright, formerly chief metallurgist with a connection of over 11 years with the company, has been advanced to manager of research.

JAMES PEW, chief of the Natural Gasoline Section of the PAW division of Natural Gas and Natural Gasoline, has been made assistant director of the division, succeeding Paul M. Raigorodsky, resigned. Pew, who came to the PAW in January, 1942, from Virginian Gasoline & Oil Company, Charleston, West Virginia, will be succeeded as chief of section by his former assistant, Charles E. Webber, formerly with Humble Oil & Refining Company, Houston.

DR. F. V. L. PATTEN, 36, assistant director of reserves, District Three, PAW, was accidentally shot to death at his home, Houston, July 9. Dr. Patten was cleaning a shotgun preparatory to moving to Washington when the accident occurred. Before assuming the PAW position in August, 1942, Dr. Patten was chief supervisor of the oil and gas division of the Texas Railroad Commission. He was a graduate of the University of Texas, 1931, and received his master's degree in 1932 and his Ph.D. from the same school in 1935. He was associate professor of engineering at Texas A. & I. in 1936 and 1937. He joined the commission in 1937 and soon was made senior engineer. He served with the commission until joining PAW, and served on many state and national oil committees.

W. O. STOGNER, 66, Oklahoma City operator and former owner of Stogner Drilling Company, died July 1. He drilled some of the first wells in the Chickasha gas field.

A. J. WEIDEMAN, 54, Michigan operator and former executive secretary of the Oil & Gas Association of Michigan, died at Mt. Pleasant July 5.

CLIFFORD M. EWENS, SR., 66, executive assistant to O. H. Carlisle, division manager of Gulf Oil Corporation, died at Houston July 7. Ewens had been associated with the company 40 years.

Advertisers' Index

*Indicates detailed information on products and services included in 1942 edition of Composite Catalog of Oil Field and Pipe-Line Equipment.

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*The Cavins Corp.	83
*Chain Belt Co.	12
*Climax Molybdenum Co.	87
Columbia Steel Co.	14
Dedman Foundry & Machine Co.	81
*The Dehydro Co.	47
*E. I. du Pont de Nemours & Co.	25
*Elastic Stop Nut Corp.	2
Fluid Packed Pump Co.	43
Ft. Worth Laboratories	84
*General Electric Co.	15
*The Guiberson Corp.	72
Houston Laboratories	84
*Hughes Tool Co.	I Cover
Independent Exploration Co.	11
The International Nickel Co.	10
Jarecki Manufacturing Co.	8
*Keuffel & Esser Co.	85
Ladish Drop Forge Co.	45
*Lane-Wells Company	13
*A. Leschen & Sons Rope Co.	53
*Link-Belt Co.	16
Lone Star Cement Corp.	II Cover
*McCullough Tool Co.	33
*Merco Nordstrom Valve Co.	Insert, 36-37
*Mission Manufacturing Co.	55
National Bank of Tulsa	76
National Tube Co.	4-5
*Oil City Brass Works	83
*Oil Well Improvements Co.	88
*The Parkersburg Rig & Reel Co.	29
*Patterson-Ballagh Corp.	84
*Pelican Well Tool & Supply Co.	78
*Pittsburgh Equitable Meter Co.	Insert, 36-37
*Quaker Rubber Corp.	54
Reading-Pratt & Cady Division American Chain & Cable Co.	51
*Reed Roller Bit Co.	30-31
R. H. Sheppard Co.	85
Southern Engine & Pump Co.	85
*Southern Mill & Manufacturing Co.	27
*Texasteel Manufacturing Co.	3
*Union Wire Rope Corp.	6
*United States Rubber Co.	39
United States Steel Corp.	4-5 and 14
Visco Products Co.	9
*W-K-M Co.	49
Warner & Swasey Co.	18
*Weatherford Spring Co.	54
The Youngstown Sheet & Tube Co.	7